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THE

NATURE AND PROPERTIES

OF

WOOL,

ILLUSTRATED:

WITH A DESCRIPTION OF THE

ENGLISH FLEECE.

BY

JOHN LUCCOCK, WOOLSTAPLER.

"As an object of national attention, the coat of the sheep is of the first importance; and every wilful attempt to supplant, or debase it, is an act of treason against the state." MARSHALL.

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PREFACE.

THE small volume, now offered to the attention of the public, depends for acceptance entirely upon its own merit. If it posses any, patronage will not be wanting; if it be destitute of interest, the author is content that it should be consigned to oblivion. He published, because he was vain enough to think that he possessed some important information which does not fall within the common line of reading. The work was written hastily, and printed as it was composed; this circumstance will account for some of the errors which it contains, and some slight inaccuracies. It is true, we have no reason to expect that the public will tolerate indolence, but when persons employ the leisure hours, which business affords them, in communicating their observations to the public, and in attempting to rouse attention to a great national object, they must be allowed to express themselves in unadorned language, and sometimes in terms which the man of taste would utterly discard.

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The reader will perceive, that the author has not completed his original intention. Some hints are thrown out which indicate a design of including a decription, not only of the English fleeces, but also of the wool produced in Scotland and Ireland. It was found, however, that either the subject must be treated very concisely, or the volume enlarged beyond a reasonable bulk. The first is not readily submitted to when the author has some degree of vanity, nor the last when he despairs of securing attention.

In many instances the want of information is lamented.—It is almost impossible to write with precision upon such general subjects as the culture, and the quantity of English wool. Should any palpable mistakes be observed, the author will be thankful for better instruction.

J. L.

Leeds, September 25th, 1805.

THE

NATURE AND PROPERTIES,

&c.

WOOL is an article very closely connected with the interest of every class of society. Considered as a production of almost every farm in the kingdom, it becomes the immediate object of attention to the whole body of Agriculturists, and the same principle which renders it desirable, that we should obtain from the soil all its produce in the most perfect state, applies with more particular propriety to wool, than to most other articles. Indeed we cannot help wishing that our fleeces possessed all the excellencies which the climate, and the circumstances of the country will admit of, and that no limitation were set to their improvement, below the point of absolute and complete perfection; for then only can the grower receive from them that compensation for his labour, and ingenuity, which he deserves; and the land owner that interest upon his capital, and remuneration for his confidence, which he has a right to expect.

If either the quality of wool be inferior, or its quantity smaller, than it ought to be, the community loses annually a portion of those advantages which nature solicits it to receive; and makes the

 most

most ungrateful return for her liberality. The more we can obtain from the ground of any valuable commodity, and the greater degree of excellency which it attains, so much the larger reward we receive for our industry, and so much the more we increase our wealth.

As an article of manufacture, wool assumes, at least, the second place in the rank of importance. It is closely connected with our comfort, and affords many of the ornaments of social life. It furnishes a large portion of our population with employment, and gives them their daily bread, contributing at once, like all similar manufactures, to the strength and the affluence of the country. But if it were possible to suppose that these should withdraw their support, or even languish for a considerable period, the workmen would fall an heavy incumbrance upon the land; they must derive their subsistence from the wealthy, the active and the benevolent. It is desirable therefore to maintain them in their full vigour, and to render their happy influence, if possible, uniform and permanent. The best mode of attempting this, is to occupy the people in working up the best of materials, to produce by their labour goods of the most valuable quality, and those which at once are in most request, and afford the largest returns for the capital originally employed. These, almost invariably, occupy a larger number of hands in their completion than fabrics of an inferior quality, they allow greater wages and contribute most liberally to the comforts of the poor. Fortunately, at present, the prevailing taste in Britain is for cloths of the first excellency, and very few amongst us are contented to appear in those of a lower

lower order. Hence, the demand for prime wools is perpetually increasing, and the looms call loudly upon the farmer, and the merchant, to supply their deficiencies. Hence too, every man contributes, in a much higher degree, a share towards the public employment; brings into circulation a larger capital than is necessary in the manufacture of inferior goods; and gives that activity to it which is the source of wealth.

If however instead of furnishing the raw material from our domestic productions, we seek it from other countries, or import it from rival nations, we do ourselves a real injury, and indirectly transfer a portion of our advantages to the hands of strangers; a conduct which, however noble and disinterested it may appear in a personal view, deserves, in a political one, the severest censure. We cannot justify, I fear in this respect, the existence of our commerce for Spanish wools without hinting, at the same time, that our forefathers have been too indolent, or too inattentive; a charge, from which, I trust, their sons will be anxious to redeem their own character.

If the raw material be so far inferior as to render it impossible to produce from it, with the utmost ingenuity, the very best of commodities, we open a wide door for the introduction of rival fabrics; and although we may endeavour to bar their way by prohibitions and penalties, they will nevertheless insinuate themselves amongst us, and too frequently become the objects of envy, especially if their superiority in any respect be strikingly evident. By this means, also they silently sap the foundations of our own manufactures, by producing an unfavourable opinion of them, and, if brought into the country in consider-

able quantities, tend to render them languid and unsettled. What indeed can that country expect, whose inhabitants are perpetually wishing for the silent and secret introduction of foreign manufactures, but that those who are employed in similar ones at home, will watch their conduct with a jealous eye, and be ready on every occasion, when they think themselves aggrieved, to seek a less precarious mode of employing themselves and their property? Whereas, on the other hand, a confidence in the superior excellency of their materials and their workmanship induces them to push their trade, proves the best stimulus to enterprize, reduces difficulties, renews the vigour of genius, collects capital, and points out new paths to riches.

Happily the manufactures of Britain have obtained an opinion in the foreign markets pre-eminently favourable; and it is sound and necessary policy to do all we can to render it more extensive and permanent, to subdue prejudices, remove difficulties which still lie in the way of their introduction, and to excite comparisons which we are sure must end in our own advantage. But even this superiority produces jealousies, which must not be overlooked. It incites those nations, which receive our goods, to continual exertion, in order to prevent their importation; and, to promote those fabrics of a similar kind, which exist among themselves, they load ours with very heavy duties, or entirely prohibit them. In such a situation it is evident that we can retain our trade no longer than we can produce goods of superior materials, or better texture, or at a lower price; no longer than we can give to our rivals new objects of imitation, and are careful that they

they do not overtake us in the competition for perfection. Thus do our manufactures perpetually call upon those who produce the raw material, to improve it rapidly, in order to render their superiority over foreign ones more decisive; that they may gain a firmer footing in the countries which receive them, and extend themselves to those where they are not admitted.

The export trade of any article, the material of which is produced at home, is of very great importance; for so long as the looms of our country do more than supply our own consumption, 'tis by this channel alone, that the surplus can find its vent. It keeps our domestic markets free, and produces that degree of competition which is salutary to all. But the instant that surplus becomes an incumbrance, prices lower, employment slackens, and discontent prevails amongst those who are first affected, and who are commonly too ill-informed to discover the cause of that difference which they perceive in their circumstances. Nor should it be imagined by him who produces the material, from which goods are fabricated, and upon whom any depreciation in their value must ultimately fall, that a small surplus upon the market is of trivial consequence; for it is scarcely to be conceived how much a circumstance of this kind will affect the demand for goods, and the price of them.

These remarks apply to manufactures in general, but are more particularly suitable to those of wool, not only as it is a production of our country, but because the goods into which it is wrought, form a principal part of the attire, and are used for many household purposes, throughout most of the temperate regions of the globe.

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When we recollect the number of succeeding ages through which this valuable material has been applied to some of the prime conveniences of life, and the immense number of persons who have made it an object of their regard, we are almost induced to believe that it must already be produced in its most perfect state, that its general properties must be universally understood, and that the most ready means of rendering them useful, have been every where adopted. But when we notice the state of "Wool-bearing Animals," either in our own country, or as they exist among foreigners, we are compelled to form a very different opinion; and the improvements which have been adopted in almost every branch of the woollen manufactory, at different periods of its history, serve to convince us that there is still much to be attained, even by nations who have most reason to boast of their superior proficiency.

The imperfection of the British fleece has of late years been very generally acknowledged, and the mode of improving it most sedulously sought after. The experiments of a Sovereign, anxious to promote, by every means, the welfare of his subjects, have ascertained that the soil and climate of England are adapted to the growth of much finer wool than has generally been produced there, and have diffused an enterprising spirit among the gentlemen of large landed property, from which the most happy effects may be predicted. The exertions of the British Wool Society, while it subsisted, did much towards depasturing the hills of Scotland with an improved race of the most useful of quadrupeds, and lead us to expect that the time is not very remote, when

when the fleeces of the northern part of the island will be in no respect inferior to those of the southern districts; and when their number shall be increased in a very large proportion. The efforts also of private individuals, who have taken pains to stock their farms with a better race of sheep, whether they have been chosen from the cotes of the most eminent breeders, or judiciously selected from the lambs of their own rearing, entitle them to the gratitude of every one, who is capable of seeing with an honest pride the growing riches of his country.

Influenced by an earnest desire of promoting, so far as it shall be in his power, the amelioration of the British fleece, and by no means pretending to a superior degree of information respecting its properties, or the improvement of which it is susceptible, than may be easily attained by all who are engaged in growing, or manufacturing it, the author of the following pages, commits them to the candour of the public, convinced that he has undertaken a task, which, in many respects, must be imperfectly executed. No one, at least to the best of his knowledge, has hitherto attempted to describe, the essential qualities of wool,—the circumstances upon which its adaptation to manufactures depends, the peculiarities of the British fleeces,—nor the number of them which these islands produce; although the discussion of such subjects appears to be an object of some importance, in the present state of political inquiry, and agricultural experiment. Whatsoever he has met with upon these points, in the course of his reading, is either too general to afford much satisfaction, or scattered too widely through a number

ber of detached publications to be of general utility. Of all the assistance, however, which he could derive from the writings of others, he has most freely availed himself, and here embraces the opportunity of acknowledging his obligations. Some of the remarks, which he has met with and adopted, were new to him; many have been comfirmed by his own observation, in almost every district in England, and through the course of several years attention to his occupation as a woolstapler. The deductions which he has made, he trusts, will be authorized by the premises from which they are drawn, and though they cannot always be supposed to arrive at the certainty of demonstration, yet he hopes that they will always approximate to truth. And if, upon the whole, it shall appear that he has treated subjects interesting to his countrymen, in a manner worthy of their attention, his utmost expectation will be gratified.

SECTION I.

Wool in General.

WE are so accustomed to consider this substance as the exclusive production of the sheep, and indeed as the peculiar characteristic of that tribe of animals, that it excites some degree of suspicion, lest the person who first informs us, that these opinions are not well founded, should be only amusing us with tales, or trying the extent of our credulity. If by accident a sheep, which never produced wool, attracts our attention, we deem it an animal in whose formation nature has departed from her established course. Yet, with whatever suspicion such accounts may be received, it is a fact, ascertained beyond the possibility of doubt, that there are sheep, whose backs are as perfectly destitute of wool as those of a deer, or a greyhound. In every other respect, they are truly and properly sheep. It is as impossible to class them otherwise, as it is to deny, that the different varieties of dogs belong to the same family, merely because one has a sleek, and another a shaggy covering.

Most of those sheep however, which are destitute of wool, have some kind of coat. Sometimes short, stiff, opaque hairs start from their pelt, at considerable distances from each other, somewhat in the manner that

that bristles do from the sides of the hog, and shew between them the fleshy colour of the skin; others have a coarse, but smoother coat, whose silky lusture invites the touch, and which under the management of an eastern shepherd, assumes a compactness superior to that of our well dressed horses. Sheep of this description, are found in a large proportion of Tartary; while those of a rougher cast, disperse themselves in Africa, in the East Indies, and the Chinese empire.

Another kind of sheep, if we distinguish them by the coat alone, bears a much longer and shaggy hair, placed not very thickly upon it, but hanging down in a close and waved staple. These, to the eye, seem to resemble in some degree the old long-wooled sheep of the midland counties; but upon a close inspection, their covering is found to be decidedly a hairy substance, which conceals about its roots, a fine short and downy wool. This, by means of instruments adapted to the purpose, is separated from the hair, and employed in manufactures. This variety of fleeces abounds in the north of Europe, in many parts of the Russian empire, on the shores of the Black Sea, among the Tartars of Asia, at the Cape of Good Hope, and in South America.

These fleeces differ very considerably from each other in the length of the pile, their weight, colour, and the porportion of short and silky wool, which may be separated from them. In some, the pile is very long, and seems adapted to withstand the rigours of the Arctic winters. In others, it is better adapted to the milder regions by its lightness, and to the animals, which wander in search of food over wide extended wastes, whose saline soils yield

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but a scanty herbage. It is not possible to state, from what we at present know of these flocks, any opinion of the average quantity of the softer substance which they yield. Perhaps it can scarcely exceed four ounces. The "hair" of this wool, *i.e.* the fineness or coarseness of the pile, the first object of a stapler's concern, is of a very inferior kind, such as we should appropriate to almost the lowest of purposes.

Most of the other sheep, that we meet with, furnish that substance which we denominate wool, although the diversity of its properties, and of the purposes to which it is applied, is much greater than is commonly imagined; for almost every country, and every province, has its peculiar fleece, and its distinct manufacture. These animals, producing a more or less valuable coat, abound in the western, and the southern parts of Europe; on the northern shores of Africa; in Syria, and Persia; and most probably in some parts of Tibet. They exist in Denmark, Sweden and North America, being recently introduced there.

It seemed necessary to give this general description of fleeces, not only to correct the common error of those, whose opportunities of attaining more correct information are very limited, but also to lead them to remark, that as some varieties of the sheep possess a covering which differs but little from that of other quadrupeds, so also, there are beasts, which yield a fur in many respects resembling wool, and which is used for precisely the same purposes. We allude particularly to the goat, the camel, and the dromedary, in the East, and the vicuna in South America. When these animals are stripped of that covering, which nature has given to them, it is sometimes called wool, and in reality possesses so many

many of the properties of that which we obtain from sheep, that we are compelled to consider them as substances of a similar kind.

It is not easy to point out the precise difference betwixt wool and hair; for though, in general, when both are presented to us, we decide without hesitation, yet, in many instances, their properties so blend with each other, as to oblige the best judges to determine differently, and the same person, after a short interval, will sometimes contradict his former opinion. In fact, it is not very uncommon to find filaments, which, in different parts of their length, exhibit both substances too visibly to be mistaken. This phenomenon, however, so far as I have had opportunities of observing it, appears most frequently in the fleeces, which have received from culture but little alteration; which approach nearest to the state of those obtained from sheep, of which little or no care has been taken since the period, when their first progenitors were turned upon the mountains, where the race has existed through such a number of successive generations, that their origin is now unknown. Such kind of hairy wool is so very common in the north of England, and among the rougher fleeces of the hilly tracts of Scotland, as to leave no doubt of the fact. It may easily be attested by taking the kemps, or coarse hairs with which it abounds, from the staple, and observing them minutely. Sometimes it will be clearly a hairy substance, about one half its length, and the remainder wool; in this case, the wool is generally finer than the other part, and is more inclined to assume a crumpled form, like a line drawn in very irregular curves. The hairy part is sometimes found at that end of the filament, which,

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at the time of shearing, was nearest the skin ; not unfrequently at the other ; it has also been observed in the middle part of it. Conclusions upon this point, however, ought not to be hastily formed, for there are millions of fleeces in which no such appearance can be discovered, and those who meet with only such, perhaps may doubt the correctness of the statement. Nevertheless, such kinds of filaments have been observed, and with proper pains may doubtless be found again, with sufficient frequency to convince us that there is a much nearer alliance between the two substances than has been generally supposed ; and that by some unknown process, while growing, they may be converted from one to the other. When we attend closely to the state of the staple, in many parts of the kingdom, we find that the points of it are very different from the other part ; a small portion is often much coarser, more brittle, and opaque than the rest, and is such as very few, who are accustomed to discriminate between the two kinds of substance, would scruple to call hair. But these points are precisely the portion of the fleece, which was left upon the back of the animal by the shearer, when he last performed his office. At that period it was doubtless wool, for the part of the staple through which the shears passed to separate it from the sheep (and which is commonly called the leech of the fleece) is wool in the best state which that animal could produce it ; and yet we see that it has gradually changed its nature as it proceeded in its growth, so as, in the space of a year, to become a very different substance. This is another instance of transmutation, which deserves the attention of the grower, and points out the very intimate connection that subsists

between two kinds of filaments, which have generally been considered as totally distinct from each other.

The cause of this gradual alteration we have sought for in the exposure of the pile to the coldness, and the moisture of the atmosphere, to the scorching heat of the summer's sun, and to the influence of the soil upon which the animal reclines. We have considered whether it might not be owing to the perspiration which exudes through the skin, and mingles with the wool, or to the want of that yolk which, from the external parts of the fleece, is so easily washed off by the showers, or whether it be not the effect of all these causes unitedly. At present we have not met with any relation of experiments which decide our opinion, and have no means of performing them ourselves in order to obtain satisfaction. It is obvious, however, that sheep which are kept in the richer pastures, and in good condition, do not yield a fleece with such hairy tops as those whose lodging is upon dry fallows, and which are obliged to travel over a large space, with a heavy load, in order to obtain their food.

From the circumstance of the same animal producing both wool and hair, in different parts of its body, which are sometimes separated from each other by a bold and regular outline, drawn by nature; and as this line does not always occupy precisely the same portion of the skin; and more especially as the two kinds of filaments are often observed to grow most intimately mingled with each other; we may conclude that the fluid, or whatever it be which produces the one, does not differ much from the secretion which forms the other. We find two kinds of hair, it is true, upon many other animals, as the mane and the tails of horses, which differ very greatly from the covering

covering of the other parts of their body, but then we always find them upon the same parts, and never intermingled with each other over the whole surface of the skin. Hence, therefore, we conclude that there is in these parts, where each is observed to grow, some peculiar secretion formed which is adapted to its peculiar production. But in sheep we sometimes find the whole head, and legs and belly, covered with a short stiff hair, sometimes enveloped in a close and thick wool. Some fleeces are quite pure from kemps, while others are very full of a short and brittle hair, which has been produced with the staple, and grown almost from the same root as its wool has done.

While attempting to illustrate the transmutation of wool, and the little difference that exists between that substance and hair, I alluded only to the British fleeces, because they fall more readily under the notice of every one who wishes to inspect them. In these coats, however, the intermixture of kemps is considered as an accidental circumstance, and the proportionate weight of them is generally small, when compared with that of the whole fleece. But there are foreign breeds, in which, as we have already stated, these are more prevalent, and where, contrary to what is observed amongst us, the production of wool is considered as the surprising and accidental case. Probably in them we should find more striking objects to confirm or correct our opinions. At present I cannot help thinking that there is originally but little difference between the coat of sheep and that of other animals; that it is only a fur of a particular species, and with properties which render it better adapted to manufactures.

The covering with which Providence, always at-

tentive to the wants of his creatures, has furnished most quadrupeds is peculiarly adapted to the climates which they inhabit. In those, where the thick and heavy coat would prove an incumbrance, we find even the sheep destitute of its usual fleece. On the other hand, from latitudes where the rigours of winter are more severe we import those furs which contribute to the comfort and elegance of our own attire; while the native, contented with the more common and less expensive produce of his folds, wraps himself in sheep skins, and blesses that hand which made their pile thick, warm and ponderous.

Carefully examining the furs of these animals which differ most from the sheep in their disposition, their habits, and their forms, we shall observe that they are generally composed of two very different kinds of hair; the one straight, glossy, and very elastic; the other more pliable, curled in its appearance, and much softer to the touch. Frequently they are very greatly intermingled with each other, and none of the more downy kind appears upon the surface, being greatly overtoped by the rest, corresponding exactly, in this respect, with that kind of fleece which is observed to be the production of sheep, in most countries, where it has been greatly neglected; and the down, or wool, which may be obtained from both, is not only very similar in its appearance, but capable also of being wrought into the same kind of goods, and by precisely the same process; the best proof of their being not very dissimilar in their nature. There are furs too of another description, in which these two kinds of hair, instead of being mingled with each other, form a particular portion

portion of every filament. In this case, the point of it, or exterior of the pile, is generally more brilliant, brittle, and elastic; that which is nearer to the skin more soft, curled, and woolly; and the part where the transmutation takes place, is commonly discernible and definite. To be convinced of this, no person need do more than examine, with common attention, the furs which are usually worn by the ladies; and he will also remark that, when they have been long exposed to friction, the brittle hair breaks off, and leaves the muff and the tippet of a ragged and woolly appearance, which totally unfits them for use. 'Tis then, however, that they have become the most proper for manufactures, and having lost the long and unmanageable hair, they are reserved as a substitute for wool, and offer another reason for believing that the two substances are very nearly allied.

When, from the notice of animals, which are so dissimilar from the sheep as the bear, the beaver, and the fox, we turn to those which bear some relation to it, as the mouflon and the goat, we shall not be surprised to find a much greater resemblance in their fleeces. The long shaggy hair of the latter, it is well known, is spun in the same manner as wool, and used as the common yarn fabricated from our fleeces; and so very nearly are they alike, that it is uncertain, to this day, whether the celebrated shawls of Cashmire, though often examined, be wrought from a material which is produced by the sheep or the goat. The shaggy covering of the goat, it must be confessed, is very different from that which we find in most of our well attended flocks; but in many parts of Asia, it appears that they feed together, and are said by some to produce a mongrel offspring, which

bears a very exact resemblance both in carcase and in fleece to the worst kind of sheep. Even in our own island it has been maintained, by those whose opinion was determined (perhaps too hastily) by the similarity of their coats, that a variety of the sheep which extends itself very widely over the Highlands of Scotland, is indebted for its peculiarity to the blood of this baser animal.

The mouflon, the argali of Dr. Pallas, which is now, perhaps, entirely banished from Europe, bears so great a resemblance to our domestic sheep, and possesses so many of its properties, as to be deemed by naturalists the parent stock. Their fleeces are indeed so much alike, that the description of one almost answers equally well for that of the other. They consist, "in summer, of a short hair, sleek, and resembling that of a deer." In winter of wool, like down, mingled with hair, every where an inch and half long at least, concealing, at its roots, a fine woolly down, of a white colour in general." This is the description given of it by Dr. Anderson, in his very excellent "Account of sheep found in the Russian empire," and communicated by Dr. Pallas himself. Other authors have represented it of a "nut brown colour," "a grey," and a "feruginous grey." Perhaps it may assume this variety of hues in the different situations where it has been found. It is now confined almost, if not entirely, to Asia, and is so shy, that as new colonies settle it retreats from their observation to the most wild and naked rocks, where it delights to bask itself in the unintercepted rays of the sun. For a larger account of it we refer the reader to the work quoted above, and to other writers on natural history. The skin of one has been presented to the British Museum by Mr. Pennant.

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Observing in this manner the different kinds of fleeces, which are produced in countries where the domestic animals have undergone the least alteration, and remarking how nearly they correspond with the coats of those which retain their native wildness, we perceive the astonishing effects of cultivation. The celebrated burdens borne by the sheep of Spain, Persia and Cashmire, were, doubtless, in their original state, as coarse and hairy as those which are now produced on the wastes of Tartary, or among the morasses of Siberia. It is probable that in most, if not all these countries, the race which now inhabits them is a breed imported from some neighbouring region. But history, which is always defective in the narrative of rural affairs, is not sufficiently explicit to enable us, at this distant period, even to guess at the time when they were first introduced; nor can we trace from it the different stages of their improvement. Those of Spain, probably, were brought from the opposite coast of Africa; and England is undoubtedly indebted for the flocks, which adorn her pastures, to various parts of the Continent. It seems, however, from hints casually thrown out by early writers, and by circumstances which exist in many parts of the East, that the sheep were at first intirely of a black colour, or very nearly approaching to it. This was most certainly the case with the flock of Laban, the first of which we have a particular account, even by the earliest historian. His shepherd and son-in-law was, in that day, the most scientific of breeders, and knew not only how to multiply his sheep in a larger proportion than was then common, but was well acquainted with the art of preserving any accidental variety, which might contribute to his own wealth,

wealth, and the advantage of society. The alteration seems to have taken place very gradually in the southern parts of Europe; for it had not reached its western side until a very late period. So slowly were agricultural improvements adopted in these ages, that no less than eighteen centuries passed away while it travelled from Syria to Spain; and the most ready way by which it could proceed was through the northern kingdoms of Africa, for there it met with the speediest reception, and the fewest obstacles to its progress! At what period this alteration in the colour of wool established itself in Greece I know not, and leave it for those to determine who are better acquainted with the early state of that country; but if it had not taken place before the Argonautic expedition, may it not be conjectured that the celebrated golden fleece bears some allusion to the yellowness which the yolk generally gives to white fleeces before they are washed?

Certain it is, however, that the amelioration of the flocks has always been closely connected with the progress of the arts, and of civilization; for we uniformly find, in countries where these have flourished, a race of sheep which yield wool much superior to that which we find all around them. Where the best blessings of social life have been but little cultivated, we sometimes meet with the strong and shy argali, which bounds before its hunters, anxious for those recesses which never were imprinted with the human footstep. But where the mattock of agriculture turns the soil, the goat, and its kindred sheep, little differing from each other in their shape or their fleece, crowd around the tent of the herdsman, and demand that care which is necessary to their subsistence.

ence. Such coarse animals as these, which even at present wander over the plains of old Scythia, are the strongest proof that they have never been cheered and invigorated by the sunshine of science. But in other countries, beyond the Alps for instance, we notice the descendants of a race which flourished in the better days of Rome. In Turkey, even under its present mental degradation, we trace the vestiges of flocks which once spread over the plains of Arcadia, the delight of their shepherd, and the subject of his song. In Syria and Persia, the influence of antient manufactures is still visible in the superiority of the fleece which is collected from their folds. Nor is the monument of Lybian luxury less conspicuous on the shore of Africa, where we meet with fleeces not unworthy of European envy. Perhaps also it may not be destitute of foundation if we conjecture that the acknowledged superiority of the wool of Taurida was derived from the early establishment of the Grecian colonies, and from the fostering care of those sent out in later times from Venice and Genoa, which diffused, through that delightful country, taste wealth and luxury. The hills of Spain also could not boast of their well attenuated pile, untill the country rose into eminence for knowledge, and commercial spirit; nor have we reason to think that she has improved it since the period when she disturbed her manufacturers, and despised their employment. The most prosperous days of Britain, we trust, are still to come, when the ingenuity and spirit which she displays shall have compleated that improvement of of her flocks, which was begun almost seven centuries ago, and which, with respect to one class of her fleeces, gave her a long pre-eminence above her rivals.

rivals. A change in the seat of manufactures, an alteration in fashions, the interruption of the usual channels of commerce, and the impolitic laws which have been passed in order to secure it, for a time checked her progress, and disheartened her husbandmen. But, fortunately, their spirit is again revived, and extends itself, with additional energy, both to the long wool and the short. Let not the recollection of former disappointment damp your ardour, or lead you to depasture the richer plains, which you cultivate, with a woolless sheep, or even with one which is too light for the soil. Manufactures, if worth pursuing, must ultimately reimburse you. Let both kinds of wool receive a due proportion of your regard, and proceed with an equal and unimpeded step towards compleat perfection. Then if the period should arrive, may it be very far distant, when strangers shall contemplate the symmetry of British flocks, and the extreme beauty and utility of their fleece, they shall behold one of the least changing monuments of departed glory, and confess to what an elevated pitch of refinement and of science you had attained.

Perhaps the furs of other quadrupeds are not so susceptible of improvement as that of the sheep, or this species, it is probable, would not have been the only one selected as the object of culture. Experiments, however, are wanting to decide the question; and it behoves us to hold our judgment in suspence, for I recollect no instances in which the trial has been made, except in the most casual and imperfect form. Yet if it be fair to reason from the effects which take place upon the coats of our cattle and our horses by attention and cleanliness, and also by a judicious selection of the male and female parent, we are inclined

clined to suppose that every kind of fur may be rendered either beautiful or useful to a degree yet unthought of. A pursuit of this kind would be very impolitic in a country where land is valuable, and important manufactures already established, if we could suppose that it would occupy the attention of farmers in general. Their time and their ingenuity is much better applied to the raising of materials, for which there is already a demand, and where their success is certain. But the parks of our nobility, and the lawns of our wealthier graziers, might, very properly, become the theatres of experiments, where all the useful combinations of stock might be exhibited, and the alterations which it is possible to produce in the carcase or its covering minutely displayed. To the honour of the age, this is in some good measure the case. But the system might be extended with advantage, and we should soon find that the more the attempts at improvement were multiplied, so much the more rapidly, and certainly, would the country derive information, and adopt what appears to be of decided importance. In such places, and under such influence, there can be no reason to dread the contemptuous smile of ignorance and folly, nor can there be danger of misapplying that industry upon which a family depends.

If it be possible to produce a beneficial alteration in the furs of animals in general, there seems no reason to set bounds to our conjectures; and it would certainly be an important point gained, if the same animal which we rear for food could be formed to till the soil, and yeild from its sides an annual tribute to its owner. It must be long, we are well aware, before the common beeves of our country could be made to

do

do so, even if it were possible to effect it; but there are cattle, enumerated by Dr. Anderson, and described with his usual candour, ingenuity, and judgment, which claim a larger portion of our attention than they have yet received.

SECTION II.

On Cultivated Wool.

THE domestic sheep is an animal so feeble and defenceless, that it depends for its subsistence, almost entirely, upon the care of man, and is never found at great distances from his habitation. Left to itself, it becomes the subject of disease, and the prey of more ferocious creatures; or if these should spare it, its own fleece becomes the abode of insects, which continually nourish themselves with its blood, and destroy its constitution. Its enemies indeed are so numerous, and constantly at hand, that it has no chance of escaping them.

But every sheep of this kind does not produce what we call cultivated wool, although it should receive a considerable share of attention from its shepherd, and its fleece a casual benefit by the improvement of the carcase, such as we find in many parts of the north of Europe, and in some districts of Asia. We include, under this general description, only that class of fleeces, which have at one time constituted a distinct object of the grower's attention; and which have received from it some degree of alteration. In some cases, the grower's care has been long since re-

laxed, and perhaps the quality of his wool may have degenerated several degrees; yet there are few, I believe, in which it has lost all the benefit of his regard, and returned entirely to its original condition.

An idea of what we mean by the original state of wool will be formed by those who have perused the preceding section, much more precisely than if we were to attempt an accurate definition of it. They will observe, that we do not think it necessary to refer to that age when there was no difference in the fleeces of sheep, if we can suppose that such an one ever existed, but that we deem it allowable to consider it as in its primitive state in any country where it is universally neglected, and where we can trace no particular instances of improvement. Such is the wool in Iceland, Guinea, and Siberia, although in each country it differs very materially from that which is produced in the others.

To trace all the alterations which the substance has undergone, is in this age utterly impossible, nor does my acquaintance with ancient history permit me to be positive as to the period when they were successively introduced into different parts of the civilized world. We must satisfy ourselves with mentioning some circumstances, which appear to have had a considerable influence in promoting its improvement, hoping that some literary gentleman will, at a future time, condense the information which is scattered through the ancient writings, and gratify the public curiosity upon a subject so interesting.

The laniferous animals were very early diffused over the western parts of Asia; the time, when they were introduced into Europe, is too remote to come within the range of authentic history. At first probably

probably they were domesticated for the sake of their milk, the common nutriment even now of most pastoral nations. But this was not long the sole object of their owner's care, for he soon found that their skins also were capable of contributing very materially to his comfort, especially in damp situations and mountainous countries. In this state of society, sheep and goats appear to have been thought of nearly equal value; and, if there was any preference, it was given to the latter animal.

Perhaps the amelioration of the fleece, like the improvements of mankind in most of the useful arts, was less the result of design than of accident; and if the Argali were really the parent of the domestic sheep, it must have advanced considerably before we have a particular account of its changes. The first flock, which is minutely described, was found about seventeen hundred and sixty years before the Christian æra, in Mesopotamia, or that part of Persia which lies between the rivers Euphrates and Tigris. It was perfectly domesticated, consisting both of goats and sheep, the former of which were black, and the latter a brown colour, a circumstance which proves that it had undergone less alteration than might have been expected. The state of the flock excited no surprize in the mind of a traveller, who had gone thither from Syria, which it probably would have done, had it not been familiar to him in his own country; and appears to intimate that black and brown were the usual colours of these animals throughout the extent of both countries. In his native land, moreover, he had superintended the descendants of flocks and of herds, which, about a hundred and fifty years before, were brought out of

Egypt ; and, if these continued to be of a dark and dingy hue, it is more than probable that their progenitors were of no other colour, and that the flocks of the then known world were, in this respect, nearly similar. During his residence in a foreign land, he continued the profession of a shepherd, and produced little or no alteration in the colour of his fleeces for the space of fourteen years. At the end of this term, the capricious temper of his master induced one to offer, and the other to accept, as the reward of continued service, that portion of the flocks which had any white in them, and those lambs and kids which should be produced with a mottled coat, whether their dams were like themselves, or of one uniform colour. As a skilful breeder, he took proper measures to produce a ring streaked and spotted race ; while, as one determined to enrich himself, he concealed the superiority of his knowledge, and the means which he adopted. From this apparently trivial circumstance arose that entire change in the breed of the flocks, which was first witnessed in the eastern world, and which is known to have established itself, at successive periods, in the western. It was not owing to the demands of manufactures, nor even to the volatility of taste ; but is one of those numerous circumstances in human affairs, which history often hints at but never pursues, although they are found to have an influence upon all succeeding generations.

This new variety of flocks soon established itself in the country where it was produced, and gradually diffused itself southwards, as far as the desart of Arabia, so that in the space of three hundred years, its whiteness had become proverbial. Indeed the colour of the fleece must have been particularly attended

attended to, and have attained a high degree of excellency, for a devout poet of that age, in the sublimity of his description, compares it to the snow; and an amorous one, shortly afterwards, asserts that the teeth of his swarthy mistress were like a flock of sheep new from the washing; and although in these cases we may be disposed to make allowance for the fancy of the poet, and the strength of eastern comparisons, yet we cannot but suppose that the beauty of the fleece gave some propriety to the simile, and delicacy to the compliment. In the desart, where people were less associated, and the influence of wealth and taste less prevalent, the sheep perhaps retained their original colour for nearly five centuries longer. Another striking instance of the slow progress of agricultural improvements, especially among people who adopt a wandering and unsettled mode of life.

This alteration in the colour of wool evidently took the line of the richest soils, and spread its influence most readily through countries where the arts of husbandry had made the greatest progress, but seldom passed their boundaries. From Persia, descending the Euphrates, and passing over the richer countries of Syria, it reached the borders of the Nile. But it is unreasonable to suppose, that it proceeded only in that direction. If it extended itself northward, and ascended the river, it must soon have reached the banks of the Phasis, and have been spread through the old kingdom of Colchis. In later ages, as we have already conjectured, it passed from thence into Greece.

When it was found possible to procure a white kind of wool, the taste of the world appears to have been favourable to its production; otherwise it must

soon have degenerated to its primitive colour. How it comes to pass that this taste existed, and even continues to display itself in most nations where wool is produced in any shape, we have no need to enquire; the fact is sufficiently obvious, and certainly had some influence in promoting its culture, both in the earlier and later ages. And when we investigate the causes which have contributed to the improvement of our flocks, we ought not entirely to overlook it. The superior cheerfulness which sheep and goats, with white fleeces, communicate to rural scenery, the cleanliness which wool of that description is calculated to promote, when used as an article of furniture or dress, and above all the greater variety and vividness of the artificial tints with which it may be imbued, which always gratifies the taste for gaudy trappings, so common among the ruder nations, have doubtless conspired, in some good measure, to render it more valuable than that, which was remarkable only for its brown and dusky appearance.

Among a people, however, whose possessions and comforts are almost equally distributed, the influence of taste must be small, when compared with that which results from their absolute wants. As an article of clothing, the furs of animals were soon adopted, and the skins of sheep, among those of other beasts, were worn without distinction, but became more common as flocks became more numerous, and the wilder animals were extirpated. In this state of society, that kind of fur would be sought after which was best suited to the climate and the condition of the people. The two chief requisites were most certainly a proper degree of warmth, which was essentially necessary to the comfort and health of the wearer,

wearer, and that adhesion of the pile to the pelt which would render the garment more durable. The tendency of some sheep to cast their coat at one season of the year would render those skins less valuable which were procured in the height of summer; and if it were possible to produce those which might retain their pile with equal firmness through every variation of the heat, one considerable object would be gained. In some of the northern regions, and those of lower latitudes where the temperature is irregular and uncertain, and if no artificial alteration has been produced, we find a kind of shaggy coated sheep, whose fleeces are attached to them with a great degree of firmness. In the warmer regions so many changes have succeeded each other, and so little has been said of the particular kind of wool which they formerly produced, that it is impossible to ascertain its peculiar qualities; yet we cannot suppose that the state of society would have less influence upon it there, than we have reason to think it had in other countries, from whence better accounts have reached us.

So long as the skins of the sheep, dressed with the wool on, were used for domestic purposes, it is obvious that only one fleece could be obtained from the animal; and that if its coat detached itself every succeeding summer through which it lived, there must be an immense waste of its produce. Happily, however, it was soon observed that even the detached fleece, by means of moisture and pressure, might be made to produce a compact and pliable substance, equally applicable to the common purposes of life, quite as durable, more convenient, and more elegant than the skins were which had been formerly used.

This

This appears to have been the first effort of genius to produce a woollen manufacture; and when the property upon which it depends was once applied to this purpose, the knowledge of the art was widely diffused. The tents of the Arabs, the Turcomans, and the Tartars, all of which are made of felt, manufactured from the wool of sheep, mingled with the hair of goats, camels and other quadrupeds, are probably the remains of it; and these, together with the taste for that kind of substance, which even at present prevails in Persia and other Eastern countries, manifest how permanently customs and habits establish themselves and triumph over the revolutions of empires and of mind. The discovery of such a valuable property in wool as the felting quality, must greatly have increased the value of every kind of hair which was found to possess it; and by promoting the comforts of society, it contributed to the amelioration of the fleece.

So soon as men exchanged a wandering life for one that was more settled, and congregated in towns, their new mode of living gave rise to new wants and other habits, and ingenuity was exercised to supply their demands. In Egypt they attended to the cultivation of flax, and soon attained a great degree of proficiency in its manufacture. In that country, the arts of spinning and weaving were first invented, and probably employed in the fabrication of that fine linen which was so justly celebrated. But when they were first introduced into the woollen manufacture is by no means certain. About the year fourteen hundred and ninety before the vulgar æra, we observe them in Arabia, under circumstances which intimate that

that they had not been long known there ; perhaps introduced by a wandering people who had lately left the borders of the Nile, and were finally settled upon those of the Jordan. There are hints, it is true, which might lead us to suppose that they had been adopted in the land of Canaan, and the country of Uz, more than four hundred years earlier, but when the expressions are carefully examined, they appear rather the proverbs of the historian's day than those of that age whose events he was relating. At whatsoever periods these arts were invented, and applied to general use, it is certain that, when first mentioned, the garments composed of both a warp and a woof were the common dress of those countries, which lie at the eastern extremity of the Mediterranean sea, and that flocks which produced the raw material had undergone a considerable alteration. We hear much less respecting goats in this than in the preceding ages. The reason of general taste for woollen clothing, upon which the effects of the loom and the shuttle had been employed, is very easily discoverable in the superior pliability of that substance, and the more convenient shapes which it may be made to assume. Among its benefits we enumerate the readiness with which it could be fabricated in every family, the taste which might be displayed in its texture, the quantity of employment which it furnishes, and the stimulus which it gave to ingenuity and exertion, by diffusing a spirit of competition among the people. The value of the manufacture is evident from the comfort which it diffused in the country where the art of weaving was first invented, by the wealth which it collected there, and the superior polish and influence which it gave to the inhabitants.

inhabitants, from its gradual adoption in neighbouring countries, and the alteration which it produced in the dispositions, the activity, and the pursuits of man, and above all, from its existence in modern ages, in every country, and throughout all changes.

While the woollen manufacture was thus enlarging its influence, and producing a proportionate effect upon the raw material, it derived considerable advantage from the invention and the improvement of those instruments which were adopted by its artists to aid their efforts, and to shorten their labours. After the arts of spinning and weaving were introduced, it was impossible to work without the assistance of some kind of machinery; but the distaff and the loom, in their first form, were little more in the hands of the manufacturer, than the spade in those of the husbandman. Spinning and weaving, as we have already observed, were in use at least fifteen hundred years before the æra of common reckoning, but the manner in which they were performed is not related until about three centuries afterwards. Then the loom consisted of a frame of wood, in some respect different from the modern one, but well adapted to the same purposes. The alterations, which have been made in it, consist perhaps more in the position of the beam, and the mode of opening the web for the passage of the shuttle, than in any other circumstance. Nor was the earliest mode of spinning less perfect than that which was practised in the most celebrated manufacturing countries for many ages afterwards. It was performed by means of a rod or staff, about which the wool to be spun was carefully wrapped, and held in the left hand, while a rough kind of spindle,

dle, quickly twirled betwixt the right hand and the thigh, was suffered to continue its motion when suspended by the thread, which the artist gradually lengthened with her fingers. This least complex of spinning machines is not entirely laid aside even now. A few years since it was not uncommon in the county of Norfolk, and its continuance in use through so many ages is the best proof of its excellency. Respecting the mode of preparing the wool for this machine, in the first stages of the manufacture, we have met with no information; probably before the introduction of the card, it was performed either by the fingers or the thistle, which, with its rough and hooked awn*, was admirably adapted to the purpose, and has continued in use, with a similar view, to the present hour. But the invention of implements adapted to agriculture and manufactures is seldom mentioned in the records of time. Their introduction has gene-

* A gentleman, distinguished for his knowledge of botany, informs me, that "the Fuller's teasel, Dipsacus fullonum, was called a thistle, Carduus, by the older botanists, on account of its prickly nature and general appearance; but is now known to differ essentially from plants of that genus, in many botanical characters. It is at this day called Cardere in French, and aptly denotes the use to which it has long been applied. That part of the structure, which has recommended it to the notice of the woollen manufacturers, is the singular hooked awn, or spinous termination of the scales of the receptacle, which separate the florets of the general capitulum, or head. It was considered by Linnæus as merely a variety of the Dipsacus sylvestris, or wild teasel, common on ditch banks, and waste places on the borders of fields, in many parts of England; and which differs from it chiefly, if not solely, in having the termination of the scales perfectly straight, and therefore unfit for the purposes of the manufacturer."

rally

rally been slow and unperceived ; or if conveyed to us by tradition, the accounts of them are so mingled with conjecture, that it is not always wise to credit them. This remark is scarcely better exemplified than in the instances of the card, the comb, and the spinning wheel, which have been applied to the manufacture of woollens, perhaps at different periods of its history, with a degree of silence which throws considerable doubt upon the time of their introduction. Probably the first of them was a substitute for the Roman carduus or teasel, and as is most natural to conjecture, was used before that empire had suffered the total subversion of order and of science. But the name of its inventor, the time when he lived, and the place where he practised the art which he improved, are not conveyed to us even by the vague whispers of tradition. The comb, another instrument well known and in common use, is said, according to vulgar report, to have been invented by Bishop Blaise, to have been used by him in Alderney, conveyed from thence to Flanders, and afterwards to England. Probably the latter part of the account may be correct, but we greatly doubt whether the Bishop is entitled to the honour of the invention. Perhaps it was not known until after his days as an instrument applied to the manufacture of wool, nor does it appear that he was Bishop of Alderney. He lived in Armenia, was raised to the episcopal dignity about the time of Dioclesian, and suffered martyrdom under that merciless tyrant. Before he was beheaded, he endured great torture by means of iron combs, with which his flesh was torn ; and hence, when an instrument of that kind was brought into common use among the workmen, they chose him for their patron saint,

saint, but without any reference to the inventor. The application of the wheel to the spindle, for the purpose of spinning, is likewise unnoticed in any history which has fallen into our hands. Had it taken place so early as the Catharine who was first cannonized, it would probably have been more generally adopted in the early ages of the revived manufactures. Perhaps here also, when the instrument was generally adopted in the Low Countries, those who used it, according to the custom of the times, chose for themselves a patron saint, and selected Catharine, because she had suffered upon the wheel. But though we know so little of the early introduction of these instruments, yet when actually applied, their influence in promoting the manufacture and the culture of wool, was no less certain and efficacious than if they had been announced in the most pompous language, and the memory of their inventors celebrated from year to year. They imperceptibly improved the raw material, by rendering it better adapted to their own operation.

Among the collateral arts which sprung up with the manufacture of woollens, which derived from it aid, and afforded reciprocal assistance, that of giving to substances an artificial colouring, was one of the most considerable. Dying was practised in an early age, and without doubt was promoted by the taste for showy attire, which is so common among the ruder nations, and which scarcely can be thought to have had less influence in the early ages than in the present. Blue, purple and scarlet were the tints most admired; and though the ingredients, by means of which they were produced, are in some measure unknown, yet we have the most indubitable

testimonies to their excellency, and the estimation in which they were held. To produce them in their richest lustre a selection of the wool most adapted to receive them must be made, and this would operate with great precision upon the sorter's attention, although it might more slowly arouse the shepherd's care. In a succession of ages, however, its effects upon the fleece could not be inconsiderable.

While the manufacture of wool was confined to the houses of the grower, and the business of it transacted by his domestics in a secluded manner, there was less room for the stimulation and exercise of genius than in after ages, when it became the appropriate calling of one particular part of the community, and their success depended upon the opinion which others formed of the fabric. Yet in the simplest days of Greece it was not deemed an employment unsuitable to palaces, nor did a princess degrade her dignity by superintending the labours of the loom, the distaff, and the dying vat. It was in such occupations that she contended for the prize of fame, and often with her own fingers drew the lengthened thread, or conducted it through the dividing web, happy to form a more splendid, a finer, or richer garment than her rivals could. By such innocent competition they produced the most salutary effects upon the workmanship of each other, the classes immediately below them, and upon the fleeces of their country. Doubtless they were at first compelled to exert their ingenuity upon imperfect materials; to attempt the production of soft and attenuated threads, like those which they saw in the linens of Egypt, from coarse and elastic wool, to give the beauteous colouring of the several flowers to dark and dingy fleeces.

Under

Under such disadvantages, and excited by an almost unbounded spirit of emulation to display their taste, and gratify the vanity of their masters, the golden fleece of Cholchis must have appeared to them a treasure sufficiently valuable to become in part the object of a voyage full of dangers, and to be celebrated in the songs of Orpheus. Perhaps the intrepid adventurers, who went to seek it, did not return with the living sheep; nor were they to be procured in these early days by the individual exertions of commerce.

After the manufacture had obtained that degree of perfection which we have observed in the East, it received no very considerable and general improvement during many ages. It continued to diffuse itself, indeed, more widely along both shores of the Mediterranean, and by improving the flocks in its progress, bestowed comfort upon the people. It would be tedious to follow it from Greece into Italy, to observe its establishment in Rome, and its progress with the arms of that mighty empire, through Gaul to Britain, and to Spain. In Persia, where the dominion of luxury was most absolute, after that the manufacture of woollens had been generally adopted, the materials were produced in the most perfect form, and the workmanship obtained a degree of excellency beyond the competition of rivals. But after the dissolution of that empire, of the Macedonian monarchy, and especially in still later days, when the Saracens, with more than brutal ignorance, like a swelling torrent, had overflowed the country, and borne down what remained of its best distinctions, wealth, and luxury, and enterprise fled from their ancient seats, and manufactures assumed the pallid hue of contagion. The ruins of these celebrated fa-

brics are yet conspicuous, and astonish the reflecting mind as greatly as the proportioned pillar, the sculptured wall, and the widely scattered fragments of Balbec, of Palmyra, or Persepolis, do the eye of the wondering traveller.

The introduction of the woollen manufacture into the different countries of Europe, has been attended with circumstances much more similar than might have been expected. It always followed the increase of wealth, and the exertion of the human faculties, the promotion of taste, learning, and luxury. It commonly followed the progress of the Roman armies, when they passed through a country less civilized than Italy, and continued to extend its influence until the capitol tottered to its foundation, and barbarians sacked the provinces. At that eventful period, the artisan driven from his loom, and the husbandman from the quiet culture of the field, sought to forget in solitude the oppression which had already fallen upon the cities, and must soon extend its influence to the loneliest retreat. Then the human faculties, destitute of stimulus, lost their vigour, and were no longer employed to render social life either elegant or pleasing. Every one sought only what was essential to his existence, and bore with sullen apathy the privation of those comforts to which he had been accustomed. The presence of the Vandal, utterly unacquainted with the enjoyment connected with refined manners, soon converted the busy towns which he had subdued into haunts of ignorance, brutality and rapine, and their once cultivated districts into barren wastes or widely extended forests, where the bear and the wolf, or men of character more ferocious than either of them, roamed

roamed in search of prey. In circumstances like these, the subsistence of the farmer was most precarious. His herds and his flocks grazed only by sufferance. And when tyranny had reached utmost its height, the man himself was claimed as the indubitable property of a master who had marked the boundaries of his estate with the point of his sword, and who disposed of the fate of his inferior vassals almost as he pleased. Such oppression, it is true, could not destroy the existence of the fleece, nor render the sheep naturally incapable of producing wool of the same quality as it had done in former years. But it rendered the pasture where the animal fed less fertile, and the herbage it cropped more scanty. It was the means of converting the once appropriated plains into barren heaths, where the woolly tribe wandered promiscuously, and propagated the species without selection. 'Tis not possible to say how far the sheep degenerated, but he who supposes that it could improve either in its shape or its fleece, must be extremely ignorant of rural concerns. He must have forgotten, that all agricultural improvement depends upon a free a spirited and happy peasantry; that whensoever they are rendered careless and supine, the best formed schemes of their superiors to advance the interest of their own estates, and their country's welfare, will prove abortive. The barbarian chiefs, however, in the eighth century, were not acquainted with this political axiom, and their oppression continued, in many parts of Europe, throughout almost five hundred years.

Yet these ages of darkness, as they have been frequently called, did not totally destroy that spirit of enterprise which had been previously excited. Ve-

nice arose out of the ashes of Rome, being selected by a few of the fugitives from that inhuman enemy of mankind who had been justly stiled the " Scourge of God," as a situation too obscure or too contemptible for his notice, and maintained the connection between Italy and the East. This city, together with Pisa, Florence, and Genoa, instituted the manufacture of woollens, and soon became celebrated from their success in the arts, and in commerce, while their example, their wealth, and the consequent demands of luxury, operated most favourably upon the husbandman and the shepherd. But had they been less jealous of each others rivalship; had their flocks never been disturbed by the din of arms, nor driven from the plundered fold to feed the encamped battalions; had they united with ardour in the prosecution of that commerce, which one could not monopolize, and which was sufficient for the employment of all, they must have become strong in union, and rich without a rival. Their manufactures would have been more firmly established, and more widely dispersed, and perhaps they would have remained much longer the emporia of the world. While these manufactures continued, their influence was very considerable, and they promoted improvements, whose effects upon the fertile soil are still perceptible. In general, the wools of northern Italy, either from the superior culture which they received under the Roman government, or that which was given to them by the succeeding republics, or perhaps because there was less time for them to degenerate, are in a better condition than those which we meet with on the other side of the Alpine mountains.

In pursuing the influence of manufactures upon the

the folds in the other parts of Europe, we find nothing extraordinary, from the fall of the western empire until the conquest of Spain by the Moors. Before that event, which occurred about the year seven hundred and thirteen, the flocks of that country were very much neglected; but these industrious people soon introduced the improved sheep of Africa, and established the woollen manufacture upon broad and useful principles, contributing to the wealth and the power of the districts which they had conquered. How far they might have pushed these improvements, had they not been harrassed by the Christians, who continually gained ground upon their invaders, is uncertain; but it is remarkable that the wool of Spain was used in England for the fabrication of fine cloths so early as the twelfth century, and was, no doubt, superior to the native produce. If this amelioration was really the effect of Moorish industry, and if it was not partly owing to the superior quality of the fleeces which were produced in Spain before the conquerors arrived there, it is one of the most astonishing alterations which we meet with in modern agriculture, and a striking instance of the effect of manufacture. But this influence, in whatever degree it existed, was greatly impaired when the catholicism of her princes compelled the industrious African to leave the soil which he had so greatly contributed to enrich, and to carry back with him the arts which he had practised with so much success; and this too at a period when the population was diminished by that thirst for gold which had drawn the natives in crowds across the ocean; when the demand for the fabrics was becoming more clamorous by the establishment of colonies; and when the Spaniard,

niard, by the influx of the precious metals, was rendered too haughty and too indolent to practise the humble and laborious duties of the field and the workshop. Since that time, we have no reason to think that Spain has greatly improved her flocks, or increased their numbers; for besides providing for a large internal consumption, which was lessened by the expulsion of the Moors, she exported a considerable surplus of her wool to Flanders and to England, and its quality was such as to ensure a market in either country. The laws of the Mesta, i. e. those by which her wandering flocks are regulated, have not contributed to their improvement so much as has generally been supposed. The utmost that could reasonably be expected from them was the prevention of the sheep mingling with those of an inferior kind; and they are such as could be endured only in a most wretched country, a miserable substitute for agricultural energy. But the fifteenth century did not by any means compleat the wretchedness of this ill-fated people. It was reserved for the seventeenth to give the decisive blow to the manufactures and their influence, by the extermination of the workmen, with a degree of inhumanity which can be attributed only to long fostered rancour, inflamed by religious zeal. If any improvement of her wool can be expected now from Spain, it must be derived, not from her manufactures, although exertions have been made to revive them, but from her connections with other countries, and a desire to supply them with an unrivalled article. The operation of this principle must always be feeble, and perpetually exposed to obstruction, when it is perceived that others are treading fast upon her heels, and are almost ready to bear away the

the palm. A disheartened competitor, who depends upon the export of a commodity which is produced by every country around him, and who already feels that the superiority of his own is of a doubtful nature, may be expected to resign the contest without any violent struggles, and relax his attention to an object the demand for which rests principally upon the exertion of foreign manufacturers, and the scantiness of that supply which they yet procure from other nations.

The art of producing from the fleece a warm and substantial clothing was never lost, even during the darkest days of ignorance. It began to revive, and became the separate occupation of one class of the community, about the middle of the tenth century in the Low Countries, where it remained the glory of the people, and the source of their opulence, through more than four hundred years. The wool which it consumed, for the first few years was the produce of their own pastures, which had but lately been reclaimed from the forest; but as the manufacture extended itself, the demands became larger, and were supplied from a greater distance. The wealth which it distributed was soon visible, and people crouded into the country, engaged in its commerce, and pushed their speculations with encreasing vigour through a hundred and fifty years, when an inundation of the sea threatened to involve the art, the artist, and the country in one general destruction. The dispersion of the people, who fled from the calamity which appeared to overwhelm their hopes, instead of destroying the infant manufacture, gave it additional vigour, and was the means of establishing a connection between the Netherlands and foreign countries,

tries, which proved of the highest importance to commerce. It contributed to a much more speedy recovery of the arts connected with the woollen manufacture from the ruin which seemed to threaten them, and gave a striking instance of their partiality for the seats where they have once flourished, under the patronage of a government liberal enough to encourage, and sufficiently powerful to protect them, even though the places should be attended with great natural disadvantages. The influence of these manufactures upon the fleeces of the Low Countries must have been very considerable, for before the year nine hundred and sixty we have no reason to suppose that their quality was superior to that which we find in the neighbouring districts; yet it was not very long ere Flanders and Brabant became famous for the manufacture of fine cloths, even at a period when they imported but little foreign wool. Perhaps the fabrics might not be equal to those which we now produce from the fleeces of Spain, or even from the improved ones of our own sheep, but they were preferable to those of England and the nations of the continent, Italy and Spain excepted. It was about the year twelve hundred that the merchants began to import the wools of other climates, to extend their connections much more widely, and to grow, by this means, still more rich and powerful. The manufactures had required a larger quantity of the raw material than usual, and the population of the country had reached that degree which does not admit of a great number of sheep being kept, even though the employment of the people depend upon the fleeces, and their subsistence upon the food which they furnish. We shall observe instances of a similar kind, when we treat more

more particularly of England. The operation of these two causes was evidently sufficient to induce the manufacturer to go farther from home, and to seek the most convenient methods of supplying his looms. It might have been expected that he would have turned his attention to France and to Germany; but, independent of the hostile dispositions of some of the neighbouring sovereigns, the raw material was too bulky to be conveyed, at an easy expence, through the bad roads of a half cultivated country; and the ships of Spain and of Britain, who found an interest in supplying the wants of the Netherlands, unladed their cargoes almost at his very door, and solicited in payment but little else than the goods which he had manufactured. Hence we perceive the reason why these flourishing woollen manufactures had so little effect upon the fleeces which were produced on the continent, while they influenced most powerfully those of England; for the merchants of the staple would prefer that kind of fleece, which was best adapted to the wants of his foreign correspondent, and found the readiest sale abroad. It could scarcely be expected that a people so conversant with maritime affairs as the English were, and who possessed so much spirit for commerce as they did, should long pursue a traffic in raw materials produced within their own island, without endeavouring to promote the manufacture of them at home. In fact, they became the successful rivals of their former customers, gradually drew to their own ports that commerce which had hitherto found its way to those of Flanders, and soon exported a considerable quantity of those very articles to the Netherlands, which they had once drawn from thence. Unfortunately, at that time,

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the resources of the manufactures of the Low Countries failed them, the work people were disturbed, and the population considerably diminished; the plough again took the precedence of the shuttle, and their fields, instead of being thronged with men, were again more thickly studded with the flocks of sheep. But they were of a race very different from those, which had formerly adorned their plains and contributed to the renown of the fine cloths which had been the source of their affluence, and the envy of rivals. They exchanged their stock for sheep of a longer staple, whose pile was better adapted to the manufacture of worsted goods, and every species of the new drapery. In this line, the artisan had fewer competitors; and as the demand increased beyond all reasonable calculation, it was attended with profit which most amply repaid the labours of genius, and induced the manufacturers again to seek in England the supplies of their looms. But as a different kind of wool was necessary to promote the new species of manufacture, they could procure it from few other places than the marshes of Kent and Lincoln, and the low track which lies near the mouth of the Humber. From these places they were in some measure supplied, and there the influence of the new fabrics was most sensibly perceived. The kind of sheep, which was then encouraged, has been preserved ever since, and bears some affinity to those which were reared on the other side of the water, whose descendants have been emphatically stiled the flower of Flanders.

From the middle of the fifteenth century, when the woollen manufactures of Brabant, and the Netherlands in general declined, chiefly owing to the turbulence

lence of the people, the impolitic restrictions which were laid upon the trade, and to religious persecutions, the workmen withdrew to Holland, Germany, France, and England, where they were received with hospitality, and contributed, by their knowledge and connections, to promote that rivalry which proved fatal to their native country. In Britain they were treated with great attention, and in return established those works which have so long benefited, and at present enrich the country.

The fabrication of woollens was introduced into Britain by the Romans, who not only taught their rude subjects the art of weaving, but succeeded so far as to induce them to exchange the skins in which they had hitherto been clothed, for the more comfortable attire of their conquerors. They established a manufacture at Winchester, so extensive as to supply the Roman army; and it cannot be supposed, although history be silent upon the subject, that it should either be confined entirely to that city, or easily abandoned by that people, so long as they had possession of the country. It is more probable that as the other arts, which are immediately connected with the comforts of society, advanced through that whole period, so the knowledge of spinning and weaving would be more widely diffused and generally practised. Perhaps the employment of the loom was not always separated from that of the field. He who sometimes directed the shuttle, at others guided the plough, or handled the flail; and the old Britons, in this respect, resembled the inhabitants of the continent. If the manufacture subsisted under the patronage of the Romans about the space of four hundred years, it is not at all probable that it should be neglected by the

natives after that their friends had left them. Nor is there, that I know of, the most distant hint in the records of history to support such a conjecture. Indeed the silence of historians upon this point, if it prove any thing, shows that the practice of converting wool into cloth was so common as to excite no surprise. Improvements could scarcely be made either in the manufacture or in the flocks during the ravages of the Picts, the Saxons and the Danes, for property was then too precarious, and the spirit of the natives too much humbled. But Alfred was born to noble purposes. He subdued the invaders, and recovered his kingdom. He established a strict police, and rendered property secure. He gave encouragement to the arts, by exciting the emulation of his subjects. He had travelled far, and seen the comforts of other countries; and it is scarcely possible to believe that a person of his sagacity, and who had done so much to promote the welfare of his people, should totally overlook a mode of disposing of their wool most intimately connected with their enjoyment, their health and their civilization. Hence then we have some reason to conclude that through the first nine hundred years of the Christian æra, the wools of England were not entirely neglected, although it does not appear, from any documents which now remain, that they were in any respects superior to those produced at that time upon the continent.

From the prices of wool which are mentioned as the current rate of the fleece, in the early periods of our history, we are induced to think that the article was cultivated with considerable attention. About the year nine hundred and twenty five a fleece was valued at two-fifths of the whole sheep, a proportion much

much greater than that which it bears at present, and which shows that either the demand for the carcase was much smaller, or that for the fleece was much more considerable than it is in our own times. The value of the sheep continued nearly the same through several hundred years; but in eleven hundred and thirty five it declined fifty per cent, while wool at the same time greatly advanced in price, and continued to do so through the space of two centuries. This was most probably owing to the improvements which it received from culture, and to the increased demand for it at home and abroad.

From the obscure hints which remain of these periods, we conjecture that the number of sheep in the kingdom was very inconsiderable; and the existence of wolves before the reign of Edgar have retarded their increase. But the measures adopted by that prince in nine hundred sixty six to destroy those animals, which are the natural enemies of sheep, manifest a degree of solicitude for the preservation of the flocks, which we could scarcely have expected at a period so early, and were admirably adapted to promote that attention to them, which contributes to their improvement.

It appears, however, that the amelioration of the fleece did not keep pace with the inclination of the people for fine cloth. In the reign of Henry II. Spanish wool, doubtless on account of its superior excellency, was imported and manufactured in this kingdom; but the policy of the age did not long permit it, and the Mayor of London was ordered to burn every piece in which it was found. The statute which enjoined this was framed for the encouragement of the British farmer, and the improvement of

his wool; yet we cannot think that the principles upon which the measure was adopted were sufficiently enlarged even for that day. It tended to destroy that commercial spirit which began to manifest itself, and threw the best of materials into the hands of foreigners, who already knew their value, and who soon afterwards supplied even England with the goods which were made from them. About twelve hundred and forty, the importation of fine cloth into England began to be encouraged; although its effects upon the fleeces of that country, and upon the interests of its farmers, must have been more pernicious than the manufacture of Spanish wool could possibly have been, had not the restless spirit of commerce counteracted the evil tendency, and carried out the surplus of wool which it was calculated to create. This kind of traffic between England and Flanders subsisted about a hundred years, without interruption. But a people, which had displayed so much enterprise as was observable among the British, could not long continue satisfied with conveying their own produce in an unmanufactured state to others, from whom they received it again at a much higher rate. About the year thirteen hundred and thirty, they began seriously to encourage the manufacture of woollens among themselves. Conscious of the superior expertness of the Flemings, some of these people were tempted to come over and settle in the country. They taught the natives to exercise the art of manufacturing wool with dexterity equal to their own, and contributed to promote the true interest of the community. This important step being once taken, the sanguine temper of the legislators induced them to suppose that the English fabrics would soon be extensive

tensive enough to require all the wool of the kingdom, and in order to anticipate their wants, or perhaps rather to create them, a law was passed totally prohibiting the exportation of it. The event sufficiently manifested how much influence the looms of the Netherlands had exercised over the pastures of England, and how greatly they had contributed to the production and improvement of her fleeces. It shows the folly of attempting to compel the current of commerce to take a new direction, and the ease with which, by gentler means, it may be allured to change its channel.

The surplus of wool, from the time of Henry II. down to that of Edward III. appears to have constantly increased; and the exportation as regularly took it off the hands of the grower. But it is not probable that while the demand for fine wools was so great abroad, the stapler should be utterly inattentive to the quality of that which he sent to market; nor while the taste for superior cloths continued at home, that the manufacturer would be careless respecting the kind which he made use of. Both circumstances contributed to operate upon the grower's attention, and induced him to prefer those kinds which met with the readiest sale, and procured him the best prices. Accordingly we find, in the southern parts of the island, where the manufacture was most attended to, and from which the largest quantity was exported, that there the flocks are in the best condition, and the quality of the staple most desirable. The growing influence of the foreign trade may be estimated with some degree of accuracy by the quantity which it took off at the commencement and the close of the period. In the beginning of the thir-

teenth century, it was probably less than one thousand and sixty-eight sacks; about the year thirteen hundred and forty, it was scarcely less than thirty thousand, each of them weighing three hundred and sixty-four pounds.

After the grand experiment which prohibited the exportation of wool had entirely failed, England adopted a much more rational system to promote the interest of her woollen manufactures, and saw them rise by degrees to an importance which she had not calculated; beheld them diffuse their influence not only over the most fertile parts of her own provinces, but also to the most barren counties, to the pastures of Ireland, and the sheep walks of Spain. She saw the hills of Scotland depastured with an improved breed, and sought a supply of the raw material not only from thence, but also from the circles of Germany, the banks of the Tagus, the states of Italy, the islands of the Archipelago, the coasts of Barbary, and even the snowy summits of the Cardilleras. She has taken pains to furnish her parks with the wool-bearing animals of other countries; has ascertained with care the respective value of each, and has mingled, with incalculable advantage, the blood of the Negretti with that of her native flocks. Nor are the products of her looms at present confined within narrow bounds. She disperses them through the greater part of Europe, along the shores of Africa, in the plains of India, to the confines of Persia, to the farthest Tartary, in the empire of China, and upon both continents of America. In the bay of Aboukir her artillery re-opened the passage to the Levant.

The measures, which have been adopted to promote the extension of the manufacture, have not always

ways been suggested by wisdom. Sometimes they have disheartened the farmer, and made him careless as to the kind of wool which he produced, and at others have induced him to cultivate that sort which has been least valuable; seldom have they excited him to try whether he could not supply the looms of his country with a material equal to that which our merchants imported, and have too often drawn from him complaints of the selfish temper of the manufacturer, and the partiality of the legislature; complaints which have too great an appearance of justice. Some of the restrictions were most certainly wise so long as the manufacture had powerful and long established rivals to contend with; but became unnecessary the instant that it took a decided lead in the markets, and hurtful the moment they induced us to seek those supplies from abroad which ought to have been first cultivated at home, and which it is now ascertained might have been produced here. Since the days of Edward III. the state of the woollen manufacture in Britain is totally altered. Then it was necessary to provide a channel by which the annual surplus of our wools might be vended; now it is as absolutely required of us to supply their deficiency. At that period the British fleeces were admirably adapted to the kind of cloth which was in greatest request; now they are generally unequal to the production of that which is sought after. Formerly foreigners paid a duty upon the wool which they received from us; now we as frequently pay one upon that which we require from them. Surely this change in circumstances demands a corresponding change in legislative prudence.

But we must not attribute the success of the woollen

woollen manufacture in Britain entirely to the measures which were adopted by the state to promote it, even when governed by wisdom. The improvement of agriculture, and the increase of wealth and population both at home and in the colonies, contributed to its support in no small degree. The greater extension of trade gave us more celebrity abroad, and induced other nations not only to become our customers, but to disperse our manufactures through their own connections, and the influence which they possessed in distant countries was of considerable service. The influx of wealth into Europe from the mines of Peru, and the commerce of the East Indies, diffused more money among those who purchased our fabrics, and the share of it which was exchanged for them encouraged both our merchants and manufacturers. Even the calamities which have befallen other countries, through the dispensations of Providence have contributed to the welfare of our own. Thus when the plague prevailed in the south of France, when the Moors were inhumanly extirpated from Spain, when the Duc d'Alva ravaged the plains of Flanders, when the Edict of Nantes was revoked and the confidence of protestants failed them, the manufactures of England were promoted and triumphed by the fall of rivals.

In later years the genius of our countrymen has contributed to give permanency to our manufactures, and to extend them more widely than any circumstance which is noticed in commercial history. The combination of the mechanical powers in the machines of Arkwright, and the application of elastic fluids for the purpose of producing motion in the improved steam engine of Watt, have given us a degree of

of power adapted to manufactures, which could never have proceeded from the largest increase of population, and an energy of mind never before exhibited even in the pursuit of wealth or of fame. With these advantages we shall not be deemed fanciful if we venture to predict the most happy result, and to assert that our commercial consequence is only in its childhood, and that (unless checked by political events) its career will become more rapid through succeeding generations. The effects which the manufactures have already produced upon the fleece are such as confirm our conjectures, and encourage the belief that we are yet unacquainted with the extent to which its improvement may be carried.

It might have been expected that the neighbourhood of France to the early seats of the woollen manufacture would have induced that country to establish a similar one upon its own territory. Yet it does not appear that she took all the advantage, which her situation afforded her. Too much occupied with military affairs, engaged too often in war with her Northern neighbours, and induced by circumstances to pay attention to the manufacture of silk, she greatly neglected the fabrication of woollens. It was practised indeed in a domestic form, but made no figure as a distinct object of pursuit until the sixteenth century. Under her two great ministers, Richlieu and Cobbert, it made considerable progress both in the nature of the establishments at home and demand for it abroad. More happily situated for the Turkey trade than the English and the Dutch, and perhaps feeling more readily the convenience of light cloths in the southern part of the kingdom than they could amidst the dampness of their climate, she gained

the ascendency in the East, and almost beat them out of the market. To secure her advantage, she took great pains in the improvement of her fleeces, and procured a selection of the best native and Spanish breeds to graze her pastures. But the revocation of her solemn pledge to the protestants disturbed her manufacturers, and drove them to foreign countries, where they might enjoy greater liberty of conscience, and prosecute their callings with more personal security. Those who fled to Saxony were received with that humanity which distress is entitled to, and with a liberality of welcome which might be expected from an enlightened and patriotic sovereign. They contributed to perfect the manufactures of the country, and laid the foundation of that fame which it has since attained on account of the perfection of its colouring. They were the first who introduced among the work people that particular tint which is denominated the Saxon blue. In every place where the fugitives fixed their subsequent abode, they contributed, by their exertion, their skill, connections and capital to the success of the native manufactures, and enabled them with more decided superiority to rival those of France. The late disorders of that unhappy kingdom have occasioned new emigrations, distressed her artisans, and destroyed her commercial connections; and thus have contributed amazingly to the preponderancy of the trade of Britain.

The manufacture of wool has been long established in Ireland, and doubtless its influence upon the fleece has been no less certain there than in other places. Yet hitherto only that kind has been produced which is suited to the low cloths of country consumption, and to the fabrication of worsteds.

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The former are adapted to the demand of a poor district, and the latter has been promoted by the exportation of her yarn.

In Sweden and in Russia the woollen manufacture, considered as a distinct occupation, is comparitively new; yet it has subsisted long enough to produce amazing alteration in their flocks. As it was attempted in later periods, and conducted by scientific men, the best means were adapted to promote the improvement, and new breeds of sheep have been introduced into both countries. The same general remark applies to Saxony and other circles of the German empire; and even Hungarian flocks are not without evident marks of change for the better.

Besides those general effects which the application of woollens to the common purposes of life have produced upon the flocks of different kingdoms, we ought also to notice that more particular and partial influence which must be attributed to the invention of new kinds of woollen articles, and the cessation of the demand for old ones. It is now too late to ascertain all the changes which the manufacture has undergone in the different periods of its history, and it would lead us too far from our purpose to attempt the investigation. It is possible that many kinds of goods may have been produced by the loom of which we have lost the very names, and there are others which have but recently attracted notice. When the manufacture was in a more simple state we observe only two kinds of substance, that which was distinguished by the name of Felt, and that which was peculiarly denominated Cloth, although under each there was probably a diversity of article. At this

that period the wants of man were very easily satisfied, and he sought not by variety to multiply his comforts, or the objects of his caprice. But in later times the felt was applied not only to the construction of the tent, it became a part of the household furniture and was made a covering for the divan and the floor; while the cloth was compelled to assume a vast variety both of colouring and of pattern. In subsequent ages the invention of the comb, or the application of that instrument to the manufacture of wool, was the means of giving fresh scope to genius in the production of a multitude of different articles. The catalogue of their names alone soon became so extensive as to be tedious in the repetition, and yet in still more recent years it was enlarged by the addition of those articles in which the woollen and worsted threads are combined with each other, and also by those textures in which either of them are interwoven with those of silk, linen and cotton. Every one of them as they rose into request, as the demand for them became greater, and as it diminished, must have had a corresponding influence upon our flocks, and induced their proprietors to regulate the length of the staple, and to attempt the production of proportioned supply.

As we know not the age when the comb was invented, so we are unacquainted with the period when worsted goods were first manufactured. It is probable that they were originally woven in the East, and that the knowledge of them was brought into Europe either by the Armenian merchants or those who returned from the extravagant expeditions which were undertaken for the recovery of the Holy Land from the dominion of infidels. The garment

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which are now worn by the Turks, some of which seem to have been produced by means of the comb, the incidental mention of that instrument in an account which we have of Angora, and the demand for worsted goods through the Levant confirm the conjecture, and lead us to suppose that there exist very considerable manufactures of this kind in the Turkish empire, although we know little more of its domestic and rural condition than can be obtained from the most vague accounts and uncertain deductions. After the art of spinning worsted yarn was known in these western regions, the looms of the Netherlands became active in converting it into those peculiar kinds of goods to which it was adapted, and it seems as though the distinction between these and woollen articles was not generally noticed until some years afterwards. Norwich, the first seat of them in England, in the year thirteen hundred and forty eight, had attained to some degree of eminence in this particular branch of manufacture, was already large and populous, and the artists were spread through the county of Norfolk; yet the quantity produced was by no means adequate to supply the demands of the kingdom, for in that very year we observe new regulations which respect the importation of worsteds from foreign countries. Nevertheless in the short space of twenty seven years, we find that this trade had so greatly increased as to allow of a considerable exportation, even after the demand for the articles at home had been supplied. There existed, in all probability, a kind of barter of worsteds between this country and the Netherlands for a very considerable date. We sent to them the peculiar fabrics of our looms, and received in exchange those

kinds which were wrought only in foreign ones. During the remainder of the fourteenth and the first half of the next century, the manufacture continued to make the most rapid advances; extended itself not only through the county of Norfolk, but even through Suffolk and Cambridgeshire; in process of time sent its colonies into Essex, the midland and southern counties, and even into Yorkshire. In the season of its prosperity it received encouragement both from the increase of the demand for worsted goods at home, and the persecutions for conscience sake which arose abroad. The Flemings, oppressed by religious bigotry in their own country, sought for that security which ours seemed to promise them, and found employment in the workshops of the eastern district. In all the different seats where the woollen manufacture established itself we may easily observe its influence upon the fleece. They were undoubtedly selected on account of their neighbourhood to some of the richer tracts of the island, whence they might be supplied with that kind of wool which was essentially necessary to their existence, and which, when the arts of husbandry were less improved than at present, could not be produced upon the thinner and dryer soils. The looms of the eastern parts of the kingdom depended for their supply upon the lowlands of Norfolk and Lincolnshire; those of the southern upon the marsh of Romney; in the midland counties they were furnished from the rich meadows which abound there; and in Yorkshire from the divisions of Holderness and Cleveland. The effects of the manufactures upon the fleeces of their respective districts, through the course of several hundred years, must have been very considerable; and we are not surprised to observe

serve in them those sheep which have departed the most widely from the state of nature.

In the lapse of ages the manufacture of worsteds, like that of every other article, has been subject to changes. At present many kind of goods which were once in great request are no longer sought after, and the materials from which they were produced must have ceased to be cultivated, or have fallen as a dead weight upon the hands of the grower, had not the application of genius converted them to other purposes, and the enterprize of commerce conveyed them to distant markets. This will be sufficiently illustrated by adverting to the demand for camblets and shalloons, which was so very great only a few years ago in this country, but which has now become nearly extinct. The wool, from which they were produced, is at present wrought by other means into articles which require a long and woolly knap; or being fabricated into substances similar to the old ones, is exported to other climates.

Among the articles, which have gone out of fashion with us, tapestry is one of the most singular. Like old paintings, the remnants of it exhibit the manners of former times; and though the designs may not always be correct nor applicable to the age when it was wrought, yet it displays a great degree of invention and most excellent workmanship. The specimens which I have seen have generally been very old, and the wool of which they were composed proved to be excellent beyond my utmost expectation. So long as the demand for it prevailed in England, as it does at present abroad, it would have a proportionable effect upon the quality of the wool;

but the want of that influence is most amply supplied by the more general use of the modern carpet.

Prior to the year fifteen hundred and sixty one the coverings of the legs were made of woollen cloth, as they are at present in some parts of Asia; but about that time, when the art of knitting stockings was introduced, and the knowledge and practice of it generally diffused among thrifty housewives, a new stimulus was given to the cultivation of long wool by the increase of its consumption, and the grey fleece was dedicated to domestic employment. This kind of manufacture also became the object of undivided attention, and was instituted with most success in the counties of Leicester and Nottingham, at Aberdeen in Scotland, and at Bala in North Wales. The invention of the steel frame so soon as twenty seven years after the needles had been applied to the formation of stockings shows an attention to the rising art, which must have contributed greatly to its success, and to render its influence upon the fleece more permanent and extensive. It soon demanded a finer wool than was cultivated upon the richer soils, and one longer than that which the card required. It was supplied with that middle kind which was not well adapted either to worsted or to woollen goods.

The art of knitting, however, was not unknown in this country previous to the time when it was applied to the purposes just mentioned. The knitted cap had long been the usual covering for the head, and those who manufactured it complained of the general adoption of felt hats as a circumstance which would deprive them of employment. These had been more or less in use from the year fourteen hundred

dred and eighty two, but the contest between the manufacturers did not subside for more than a hundred years. In the reign of Elizabeth the cappers made a violent struggle to counteract the trade of their rivals, and to restore their own article to its accustomed estimation. As they used different kinds of wool the influence upon the fleece would vary as one or the other prevailed.

The effect which the finer cloths produced upon wool, when the taste for them began to prevail, has been noticed already, and these instances may be sufficient to give an idea of the changes which are perpetually taking place in the different branches of the woollen manufacture; one article is continually and almost imperceptibly trenching upon the demand for another, and this again resuming its former importance. Yet it is not often observed, when the taste for a particular kind of goods has subsided, that it rises again to its former consequence. Political assistance may support the demand some time longer than it would have existed without it, but can produce no permanent and but little valuable effect; the continued operation of those causes which produced the decline, countenanced by the public inclination, will finally prevail over all artificial means to counteract them. In this light we view the late measures adopted in the county of Lincoln to promote the consumption of long wool, and to establish the manufacture of it within the country where it grows. Notwithstanding all the advantages which are pointed out, and the efforts made to realize them, it is more than probable that the scheme will fail; for it is in vain for ladies to appear at balls and public places in stuffs of domestic manufacture, so long as the

greater part of females in the district prefer the showy attire of the printed callico, or the more flowing robe of transparent muslin; so long as dimities are preferred to calimancoes and cotton to worsted; or while kid, Spanish leather and morocco take precedence of everlasting stuff. It is of much greater consequence and more congenial to their nature that our ladies should mark the rising taste; and, if it be advantageous to the community, that they should afford to it all the aid of their fascinating charms, rather than lend them to support a mode of dress that is growing obsolete. At present almost every article of female habiliment, and many of those which are connected with household convenience, are drawn in the raw material from foreign countries, the produce of a distant soil, almost new within a century and many of them in less than three score years. It is certainly wise in Britons, notwithstanding the decline of home consumption, so long as foreign markets can be found to take off the goods of old English fashion, to produce them both in the loom and in the field; to exert their utmost power to supply, as we do at present, with our own wool the wants of those who cultivate the cotton shrub, while in order that we may spare it for them we clothe ourselves in the more elegant fabrics which are produced from the materials they send to us in exchange. While this kind of barter continues there can be no danger of a superfluity of fleeces, and the numerous woollen articles which we now produce, and the variety of new modes in which they are applied to use in this and other countries give the grower of the wool the most ample security that there will be no surplus left upon his hands for many years to come, if he only take

take care to observe what is in demand, and to cultivate it with attention.

Such is the operation of the grand cause upon which all improvement in wool depends, the application of it to useful purposes. I have endeavoured to trace it from the earliest ages and to give an historical sketch of its progress; of the arts which are connected with the manufacture; of the instruments employed in conducting it; of the changes to which it has been liable, and of the policy of England with respect to it, at all times taking for granted these obvious principles that the value is in proportion to the demand, and that every man is desirous to produce that article, which he supposes will afford him the largest return for his labour. In order to have a compleat view of the subject, it will be necessary to apply ourselves to the consideration of those more particular causes which operate directly upon the fleece.

In attempting this we feel more than usual diffidence, for although it be a subject compleatly experimental, and in connection with which all unsupported theories are idle and delusive, truth and candour compel us to acknowledge that we have performed no agricultural experiments, and that we are totally unacquainted even with the rudiments of farming. Confined almost entirely within the precincts of commerce, rural concerns reach us only by report, and render us always liable to commit palpable mistakes, when we apply to preconceived theories, facts which are related, and deduce from them conclusions. Should these pages therefore fall into the hands of a professed grazier, we commit them to his candour and solicit information.

The

The Naturalist has commonly classed the tribe of sheep by their fleece, the colour of the face and legs, by the structure of the ears, the horns, the tail and the rump. The Grazier classes them precisely in the same manner, but instead of using the term species, he considers each class as a distinct "breed;" and in order to distinguish the varieties which he perceives he calls them "cross breeds." The term, it must be confessed, arises naturally from his peculiar pursuits, and is by no means improper. The wool-stapler on the other hand, whose attention is confined chiefly to the fleece, has his peculiar arrangement; he distinguishes the hairy sheep, that which yields wool mingled with hair, and the pure wool-bearing animal. The first of these classes is evidently unconnected with his profession. In the coats of the two last he observes numberless dissimilarities, and arranges them according to the colour of the pile, the length of the staple, the soil upon which the fleece was produced, and the country where it was shorn. These are the principal points to which he attends. The last is of no consequence except so far as it is connected with his knowledge of the district. It then serves to give him a general idea of the wool which happens to be the subject of discourse. Hence he most commonly connects with his description of the fleece the name of the kingdom or the county where it was grown. He speaks of the wool of Spain, of Portugal, or of Germany, of the fleeces of Sussex, of Norfolk, of Shropshire, of Northumberland or of Scotland; and conveys to the ear of another stapler, by the epithet which he uses, an idea of the properties of the wool as correct as the graziers do

of

of sheep when they speak to each other of the Norfolk, the Ryeland, the Cheviot or the Dishley breeds.

The division of fleeces into distinct classes, which the woolstapler so constantly adopts and finds so useful in his business, is intimately connected with a fact in natural history, which has been long since established beyond all possibility of doubt; that the sheep is so constituted as to yield a fleece peculiarly appropriated to its distinct breed; and that at every annual return of the season for shearing, the same animal, under the same circumstances, will afford a similar kind of wool. If therefore the colour of the pile was once white, it will be found so again; if the staple was long, it will return in the same form; if it was coarse and hairy, it will be so still. A temporary and partial alteration may be produced in the fleece, by circumstances which we shall notice hereafter; but there is no reason to suppose that in any case the constitution of the animal is so changed, as to yield a kind of wool permanently different from that which it once afforded. The operation of slighter causes upon wool is constantly visible, and their effects have been noticed with some degree of precision; but the consequences which some of the more violent ones produce, such as affect very suddenly the temperature to which sheep are exposed, their nourishment and their health, have been suffered to pass unrecorded and perhaps too often unobserved. The degree of information we at present possess, induces us to attribute the slight variation, which we perceive in the fleeces of the same flock at different seasons of shearing them, not to the constitution of the animal, or to any change which takes place in its characteristic peculiarities, but to the influence of external

external circumstances, which are perpetually varying, and seldom if ever change in a similar manner throughout two succeeding years. If the fact, that the fleeces which the sheep produces are similar to each other, be well established, and if it be not in the power of the less violent causes to produce a material difference in them; then nothing can more strongly evince how important it is for the wool grower to mark well the peculiarities of his flock; to place no dependence upon accidental and external circumstances for the production of good fleeces, but to rely entirely and with confidence upon the properties with which nature has endowed his sheep.

The perpetuity of animal properties is scarcely any where more strikingly exhibited than in the certainty and regularity with which the parent sheep convey to their offspring their own distinguishing characteristics. It is easy to trace the features and to observe the disposition and the fleece of both its progenitors in the lamb, but so blended and softened as to produce a character distinctly its own. What an amazing field for the exercise of human genius and assiduity has the Great Disposer of nature opened by this arrangement! In this as in most other instances he has committed to man's own hands the management of his comforts. By this means the shepherd is enabled to combine the peculiarities of his flock with those of another, and to improve them both. It was upon this circumstance that the great Bakewell seized, and by means of it produced a race of sheep which will convey his name to future generations. His example diffused a spirit of experimental enterprise among his brethren, who have acted upon his ideas with the most happy success, and promises

mises to extend its influence until the first of human arts has attained a degree of perfection, which it is not possible to describe. 'Tis upon this combination of the parents' properties in their offspring that we depend for the future improvement of the British fleece, and hope that those to whose superintendance it is entrusted will not be satisfied until every individual quadruped, which produces wool, shall possess its full share of utility.

The improvement of wool, it should ever be recollected, consists in rendering it better adapted to manufactures. Alterations which fail of this grand purpose, if produced by design, are trifling and contemptible. If they render it less susceptible of an application to useful purposes, they and the abettors of them deserve the severe reprehension of an enlightened agriculturist, who declares that "the debasement of the fleece is an act of treason against the state." But manufactures are so very changeable, and their demand for the raw material has been so uncertain in past ages, that the grazier ought to observe with the keen eye of a statesman the public and the domestic occurrences of the moment, if he would produce from the backs of his sheep a commodity, which shall possess the highest intrinsic value, and be most assiduously sought after.

It would be folly to attempt the description of a sheep, which would yield in every country the most valuable fleece. The circumstances of nations differ so widely from each other, and their manners their clothing and their manufactures are so very various, that the wool which is of the utmost value with one people is very lightly esteemed amongst others. The agricultural system adopted in Bucharia, an extensive

sive country in Asia, where sheep are cultivated with as much attention as in many parts of Europe, furnishes one of the most striking illustrations of this remark. In these western parts of the old world the preference is given to white fleeces, and that for reasons which are deemed the most weighty ; but there black sheep are more esteemed because they furnish a kind of fur which is much worn, and sold for a great price among the neighbouring people. In Europe we rear them on account of the carcase ; but in that part of Asia they are kept for the sake of the skin. Here the older sheep are slaughtered, and the lambs are nourished to supply their places ; but there the lambs are destroyed, and the ewes are preserved so long as they are productive. Among us a woolly coat is an object of the first importance, but the inhabitants of that region are solicitous that their flocks should be distinguished for their covering of soft and silky hair. So greatly do nations differ in their ideas of beauty, utility and intrinsic value! In a country like England, therefore, whose woollen manufactures are established, and where many of the articles are destined to a foreign market, it behoves the inhabitants to observe the taste and the prejudices of every people, to suit their goods to the ideas of excellency which their customers entertain, and to push their trade to the utmost extent. While endeavouring to attain these grand objects, the manufacturer calls perpetually upon the wool grower to assist him by adopting those breeds of sheep, which yield a fleece the best adapted to the purpose. He intreats him not to be so prejudiced to old families and to ancient modes of management, like his ancestors, as to submit with reluctance to the constant and imperious influence

influence of manufactures. He solicits him not to counteract the efforts of the loom, but to anticipate as much as possible its demands. He assures the breeders of sheep that their interests and his own run precisely in the same direction; that fabrics well supported and abundantly supplied with the raw material have the best chance of maintaining their ground, that then they afford the largest return for capital and labour and that the profits are always divided between them both. He entreats them to recollect that he has in no case deserted his coadjutors but with the utmost regret, that it has always been in consequence of circumstances over which neither he nor they had any controul, and that he has been the first to point out to them the new kind of wool which they ought to cultivate.

The causes which produce such an astonishing variety in fleeces are in a great measure unknown to us; and when attributed to the constitution of the animal, it is traced to a source calculated to convince the world of our ignorance. But as the effects which proceed from the influence of blood are always uniform, it affords a basis upon which the sheep master may found his conduct with the utmost confidence, and enables him to foretell the result of combinations in the breeding system with wonderful precision. Yet how it is that the colour of one fleece differs so totally from that of another; that one portion of an animal should produce an opaque and brittle hair, while another yields a transparent and elastic wool; why in some breeds the fleece should be confined to the carcase, and in others envelope almost the whole animal; why some families of sheep produce white wool, although their faces and legs are black; and

whence it is that we never find the converse of this, a race of sheep with white faces and legs producing black fleeces, we cannot tell. Our ignorance upon these subjects is universal and compleat; and perhaps like many questions of a similar kind, which may be very easily asked both with respect to sheep and quadrupeds of a different description, all enquiries instituted with a view of removing it, must long remain unanswered, notwithstanding the illustrations of the learned, and the practical observations of the most attentive grazier. The breed of spotted sheep, so common in the parks of our nobility, is very different from that which is intended when we speak of one with white faces and legs producing a black fleece. In the vast variety, which the characteristic marks of this tribe assume in their distribution over the body of the sheep and in their dimensions, it is possible perhaps to find an individual whose fleece is black, and its face and limbs entirely colourless; yet we have no reason to think that there exists a breed of this description, a race which has communicated the peculiarity from the parents to the offspring through a number of succeeding generations.

There is no other breed of sheep, in which nature distributes the colours so capriciously as in the spotted one. Most of these, which yield a fleece of a hue different from that of their extremities, exhibit a tendency to produce lambs of a darker cast than themselves; so that the flock, if left without the superintending care of its possessor, would in the course of a few generations become entirely black. This remark has been made by some of the most intelligent breeders. It is deduced from their intimate knowledge of the animal, and from the care and watchfulness

ness which they find absolutely necessary in order to preserve the beauteous whiteness of its fleece. Had they recollected the early history of the sheep, when it had departed but little from the undomesticated state, had the facts which have been mentioned in the former part of this section recurred to their memory, it is probable that the circumstance would not have surprized them. They would have pronounced with less hesitation their opinion, "that nature in this instance was only endeavouring to return to that course from which the genius and industry of man had long compelled her to deviate." So pertinaciously does she seek this ancient path as sometimes to produce even from unstained mates, in whose formation and fleeces culture has produced its most compleat and boasted alterations, a sooty coloured lamb, as if to remind us that though constrained in these well bred flocks to wear a fashionable garb she is ready on every relaxation of discipline to exchange it for a more loose and humble attire. The flocks also with black and dingy faces, in whose fleeces the tendency to degenerate has been most frequently noticed, and whence the conclusion was drawn that the original breeds were entirely of a dusky hue, are very widely scattered over the surface of the globe. Even in countries of the highest polish, and where the utmost attention has been given to their wool, they range almost without a variety, and evince how much may still be expected in the cultivation of an animal which both feeds and clothes us. The breed which is distinguished by the whiteness of its face is confined within much narrower limits, abounds most in the richer districts, is generally found both at home and abroad to produce the longer wools, and even in

countries where it ranges over wide extended hills is commonly deemed the most tender animal.

But the peculiarities of blood are connected not only with the colour of the fleece, they have also a most material influence upon the structure of the pile. The filaments, which different breeds of sheep produce, are much more various in their nature than those who are not accustomed to observe them will readily conceive. When examined with the assistance of the microscope, the only mode of becoming acquainted with the minuter properties of wool, the filaments of white fleeces appear perfectly transparent and colourless; they bear a very great resemblance to shreds of nicely spun glass. Some very good judges of wool have spoken of it as though they doubted the correctness of this description, and seem to consider it as an opaque but polished substance; yet it appears to be indubitably transparent by the effect which it produces upon the rays of light when thrown through it from a good mirror to the lens of the instrument. It refracts them agreeably to the laws of transparent substances, and precisely with the same appearances as the crystallization of salts by means of the solar microscope. But the hairy parts of the staple, when seen through similar instruments, appear perfectly opaque; where they change to wool, the filament becomes clear and transpicuous; another circumstance if an additional one were wanting to convince us that the coat of the sheep does not differ very essentially from that of other quadrupeds. The pile of a black sheep, although it seems to possess every quality of wool when examined by an unassisted eye, is nevertheless destitute of that clearness which the combination of lenses

lenses exhibits. Its opacity however is not always uniform. I have sometimes seen a black filament studded with white transparent spots dispersed through its whole length; which shows most evidently that its opacity and colour is rather the effect of the arrangement in the particles composing the pile, than any particular secretion formed by the skin of the animal. The surface of black filaments appears so far as can be discerned smooth and uniform like that of whiter ones, and their outlines as well defined, so that the colour is probably owing to something distinct from that arrangement of surface which absorbs or dissipates the light. The transparency of wool, which has been found most perfect in the best kind of fleeces, seems to be connected with the breed of the sheep, and is therefore an object worthy of the wool grower's attention.

There are some other breeds of sheep which yield a wool remarkable for its brilliancy; although the pile be not perfectly opaque, yet the surface of it seems to possess very fine polish, like that of a metallic needle; and the lustre with which it reflects the rays of light has given it among workmen the appropriate appellation of silvery haired wool. This is most frequently found upon the backs of sheep whose pile is remarkably long and hairy. 'Tis not so frequent in England as it formerly was, and the farmer will do well if he banish it entirely. There are still other breeds, which afford fleeces whose pile is observable for a wan and sickly appearance, destitute of lustre and almost without elasticity; and some, both in their general appearance and the structure of the filament, bear a resemblance to unwrought cotton. In the Vigonian wools we meet with a staple

nearly opaque, but remarkable for its smooth and silky texture.

The particular shape of the filament is most probably determined by that of the pore in the skin, through which it is protruded. In some families of sheep we observe the pile perfectly round and even, like a very nicely drawn wire; and in others it is uniformly flat and smooth, like a small bar of finely polished steel. This difference is frequently discoverable by inspection alone, but becomes more obvious if one end of the filament be held fast while the other is rolled round its own axis betwixt the fingers. It then reflects the rays of light if it be flat in the same way that the metallic shreds, which we obtain from gold and silver lace, do when they are treated in a similar manner, and concerning whose shape we can have no reasonable doubt. This variety of arrangement which we observe in the particles composing the filaments peculiar to different breeds of sheep, and the laws by which it is regulated, are subjects not entirely unworthy of their notice who have time and inclination to pursue them, nor of his whose object is to produce wool in its most perfect form.

Another topic, which might with great propriety be recommended to their attention, is the quality of that substance which is most commonly found intimately mingled with the pile of our fleeces, which on account of its yellowness and consistency, its egg like appearance, is aptly denominated yolk. The investigation of its properties, and of the good effects which it produces upon the fleece while growing, is more properly the business of the grazier than of the wool-stapler, and he has the most abundant means of acquiring information. Hitherto it must be acknowledged

ledged that they have been too much neglected; yet the few facts with which we are furnished indicate that without the assistance of yolk, or the application of some other substance which shall act as a substitute for it, wool possessing the best qualities cannot be produced. The celebrated breeds of Berry, of Castile and of Persia, we are informed, furnish the most copious supply of yolk, and at the same time yield those valuable fleeces which are eagerly sought after by the manufacturers of the countries where they are shorn, in order that they may be able to supply even distant markets with the most valuable commodities. The attempt to improve the fleeces of England, of Germany and of Sweden, by the introduction of foreign blood, has uniformly exhibited proofs of the value of this nutritious substance; not only by communicating to the offspring a more soft and attenuated pile, but by enabling them to yield for its support and preservation a much larger supply of this valuable fluid. And even the native breeds of our own island, whose unmingled blood has flowed through several ages, if attentively examined, evince that the power of producing a copious supply of healthy and nutritious yolk is one of the most important qualities of wool-bearing animals, and that there is scarcely any property in which they differ from each other more widely. The fleece itself when shorn without washing most clearly shows that the breast and shoulders of sheep have generally yielded it much more freely than parts remote from the vitals; and the good qualities of the pile which is produced there are distinguishable by the most untaught observer. On the hinder parts of those animals which have been long neglected a coarse and shaggy

shaggy staple is most commonly observed, and the wool becomes finer and more valuable as it approaches the fore quarters; but in cases where the sheep have been improved, and a larger quantity of the animal juices directed to the thighs, the breech of the fleece has not only become less extensive, but is also composed of smaller hair, a circumstance which on many accounts is well worth the attention of the grazier. The quantity of yolk which our native breeds produce is in general smaller than that of foreign sheep, yet even among them the variety is so considerable as to furnish data for very useful conjectures. In the southern parts of the island it is sufficient for the production of a coat which enables the flocks to endure the rigours of winter without any additional covering, sufficient also to prevent the fleece from becoming thin or hairy; but in the northern parts of the kingdom, and upon the hills of Scotland, some of the breeds of sheep produce it in such small quantities as to render it unsafe for the farmer to expose his flocks to the severities of the winter quarter, unless he furnish them with an artificial covering of grease mingled with tar, in order, as he says, to keep them warm. Yet he confesses that he finds this dirty coat as indispensibly necessary to the good qualities of the fleece as it is to the health of the animal; without it the wool becomes hairy, thin and light, with it the fleece is full, soft and rich, possesses a sufficient quantity of healthy yellow yolk, and appears to thrive much better after the tar has been laid on than it did before; the nature, the qualities and the condition of the wool are most wonderfully improved. From these circumstances we conclude that the yolk, a substance which has been so greatly neglected, yet has so long

long deserved the attention of the grazier; which has been perpetually under his eye through a long course of ages, is not only necessary to the production of a valuable fleece, but is the very pabulum of wool. The French have taken much greater pains to ascertain the nature of this valuable oil and its effects upon the fleece than the English, although we can boast of much older manufactures than theirs, and the assistance of the legislature through more than four hundred years. On the other side of the channel, intelligent manufacturers have been encouraged to institute experiments, and perform them with such ease as to convince themselves that some of the best qualities of wool depend greatly upon the quantity of yolk in which the fleece is produced. The English wool which they tried, and found remarkably deficient in this respect, they pronounce to be "hard, dry and rotten." When they assumed the character of experimental philosophers, and endeavoured to elicit the secrets of nature, we trust that their judgment was not influenced by the prejudices, which too often exist between rival artists; nor should ours so far prevail as to render us too proud to learn even from a junior and a foe.

Some who have thought upon the subject have concluded from the oiliness of the yolk, that it consists of the common perspirable matter, which all animals exude, mingled with a portion of that greasy substance which sheep so copiously secrete. But M. Vauquelin who has submitted it to the test of chemical analysis declares as the result of his experiments, that "the greater part of it is a soap with a base of potash," and that the remaining portion consists of

that

that salt in a state of combination with other substances. The whole of it he considers as the production of the animal, without the addition of any ingredients which the fleece might accidentally collect from the soil or the litter upon which the sheep reposed. The account which this learned chemist has published upon the subject, together with some remarks upon the method of scouring and bleaching wool, may be found in the Philosophical Magazine, vol. 19. We are sorry that a person so well qualified did not push his experiments farther and endeavour to ascertain whether the yolk be similar in all the various breeds of sheep, and how far it differs from the matter perspired by other laniferous quadrupeds.

The manner in which the yolk acts upon the wool is not accurately known. Some have considered it as the superabundance of that substance which forms the filament, and which by some unknown process while the pile is growing is consolidated into a transparent mass; while others conclude, perhaps more reasonably, that it is a peculiar secretion, which exudes through the skin, and by intermingling with the pile renders it soft, pliable, and healthy; affecting it much in the same way as oil does a thong of leather when kept immersed in it and perfectly saturated. A very curious and intricate question has been asked respecting the mode in which the wool imbibes the yolk, whether by means of the root alone, or also by the pores which it is supposed may be scattered through the whole length of the hair. But as this question, if solved, promises no useful information, we shall leave it to the advocates of the respective hypotheses to determine, and satisfy ourselves with having barely mentioned it.

Much

Much need not have been said upon the nature of yolk and its intimate connection with the good qualities of wool, when speaking upon the peculiar constitution of sheep, had not this distinguishing feature of their different families been too much neglected. In general this substance has been noticed without any particular reference to the breed of the animal, or the qualities of the fleece which it bears: sometimes as totally disregarded as the sand, or the hay seed, which are accidentally mingled with the pile. Yet the disposition to produce this valuable animal soap is certainly as important as some other characteristics of the sheep, and ought not to be overlooked when we describe their different varieties, or select them for our farms.

I have not yet seen any of those animals or their produce which are said to afford a staple equally fine from every part of the body, but conjecture that if this breed were minutely examined it would appear that the yolk is produced in equal quantity on every part of the carcase. The sheep also which produce wool upon their bellies and shanks, like the Merino family, most probably yield a good and healthy yolk down to the very fetlock; while those which cover these parts with a short and opaque hair, like the Wiltshire breed, afford the secretion so beneficial to the staple only from the upper parts of the half covered body. The dissimilarity of the fleeces yielded by these two kinds of sheep, the compleat envelopement of the one, and the scanty coat of the other, leads us to suppose that the quantity of wool, which we produce from an individual sheep, is in a great measure regulated by the conduct of the grower. If he approach the purity of the Spanish blood he

he clothes his flocks in a kind of surtout which enwraps every part of the animal, except the lower extremity of the face and the feet; and by selecting his rams from the Downs of Marlborough, if he were ambitious of such a distinction, he might probably produce a race entirely devoid both of wool and of yolk.

It has already been suggested that it would be the extreme of folly to point out any particular breed of sheep as that which, in all circumstances, might be considered as the best. On this point the opinion of the wool-grower must be determined by the demands of the manufacture and the circumstances of his farm; yet he may always depend upon it as an indubitable fact, that whether he produce long wool or short, of a coarser or a finer pile, it will be good or bad, adapted to the purposes for which it is designed or not so, in proportion to the quantity of sound and healthy yolk in which it is produced.

Here, as in every other case, the breed is of the utmost consequence. It is the basis upon which all improvements of the flock must be founded; the only source of hope that attempts to produce fine wool of the first quality will be followed by success. Other circumstances are generally imposed upon the shepherd, and he has little more controul over them than over the storms of winter or the sultry heat of autumn. He may preserve his flocks from their extreme influence, but cannot entirely counteract it. But the breed, the constitution of his sheep, he can change almost at will; it is submitted to his own direction and deserves his first regard. The temperature to which sheep are exposed has long been considered as one of the prime agents in the production of fine wool. This valuable substance was observed to abound most in countries

countries, which enjoy the influence of a mild and generous climate, exposed neither to the oppressive heat of the torrid zone, nor to the chilling winds of the frigid. The best fleeces are grown in Spain, Italy and Persia; countries which lie under almost the same parallels, and enjoy a temperature sufficient to maintain that copious and regular perspiration of the animal, which is undoubtedly favourable to the production of good qualities in wool, although not absolutely essential to the fineness of the pile. It was supposed that a greater degree of heat by dissipating the juices of the sheep prevented them from nourishing the wool; and that the fleece by this means became short, thin and hairy. On the contrary, in regions where the climate was less warm, it was conjectured that the yolk, or whatever it be that promotes the growth of the hair, was rendered unsuitable to the production of an attenuated pile, and caused the fleece to be coarse, long and shaggy. The opinion was supported not merely by observing the situation of the countries where the better fleeces are grown, but also by remarking that when a sheep changed its climate it produced an offspring not so much resembling itself as the lanigerous animals which surrounded it; and that in a few generations its descendants were scarcely distinguishable from the native sheep. The instances, which have been adduced with the greatest confidence, as affording a sufficient demonstration of the all-powerful influence of climate, were collected from accounts, which have been given of English sheep exported to the West Indies; of Spanish to South America, the Cape of Good Hope and some other countries; and of those, which were regularly conveyed by the Dutch

to the island of Java. The degeneracy of their offspring has been thought a sufficient reason for supposing, that the constitution of the wool-bearing animal was incapable of enduring without injury the excessive heats of these southern regions. But in these instances the intermixture of blood was entirely overlooked, and the animal absurdly expected to produce a lamb exactly similar to that, which it had dropped in its native country when mated with one which carried a fleece resembling its own. The insufficiency of this argument is now generally acknowledged, for by more accurate observations it has been discovered that the sheep of England, when transported to Jamaica, yield the same kind of "burly fleece" as they did at home, and if prevented from mingling their breed with that of the native stock, their offspring afford a wool exactly similar to that which they would have done in this climate. Even the hairy native sheep of the island, which probably came originally from the Spanish main, and were supposed to possess a coat without any admixture of wool, are found to produce that substance in small quantities concealed beneath their stronger and more brittle covering, and would most probably produce it in a larger proportion if proper measures were taken to cultivate it. But in a country where the fleece is not shorn, and in a climate where the woolly pile is little used, it is not wonderful that the flocks should be neglected or their produce little regarded. The same general remarks apply to those sheep of Spain, which have been exported to the American colonies. So long as they were suffered to intermingle with those, which had been introduced from other quarters, the race invariably degenerated; but since care has

has been taken to preserve them distinct, as good wool has been imported into Spain from Buenos-Ayres as the individuals would have produced at home. At the Cape of Good Hope the Spanish flocks have uniformly exhibited the same phenomena. When preserved pure from the native blood, the lambs have been distinguished for the beauty of their fleece; and the descendants of a pair, which have been carried even to the distant shores of New South Wales, whose progenitors were conveyed from Spain to the United Provinces, and from thence to Africa, produce a fleece so correctly beautiful as to rival, it is said, the best produce of the Leonean mountains. The animals also which have been observed to cast their fleeces, when sent on shore in Java, most evidently do so not because the heat of the climate is incompatible with the growth of wool, but because the land about Bantam is naturally ill adapted to the constitution of sheep. They are driven to the mountains, a more cool and dry situation, not so much with a view of preserving their fleece, as to secure their health, and prolong their lives.

The existence of fine wool in the more temperate regions has been accounted for upon principles very different from the natural tendency of those climates to promote its growth. The superiority of the Spanish, the Italian, and the Persian fleeces, has been traced already to the establishment of ancient manufactures, which continually affected the flocks through a long succession of ages. To this cause it is most naturally attributable, and there is no occasion to seek for an auxiliary one. Had the superior kind of wool derived its excellency only from the influence of the sun, of the clouds and the soil, the fleeces of

the southern parts of France, of Turkey and Arabia, even those of the northern portion of Hindoostan and of China, must have borne to each other a very considerable resemblance; nor could the pile of Spain have greatly degenerated by being conveyed to the hills of Mexico or of the United States of America. If a moderate degree of warmth had been absolutely necessary to the existence of wool-bearing sheep, none of them would have been found on the coast of Guinea, nor in the scorching regions of Bengal; it would have been impossible that both distinctions, those which produce a valuable pile, and those destitute of it, should exist together almost in the same plains, and crop with equal avidity the same arid grasses. The production of wool even under the Equator is one of the most convincing proofs that the fleeces of sheep are not so greatly affected by the sultry and oppressive heat of the climate, as by the constitution of the animals which produce them.

But the effect of heat upon wool is nevertheless very remarkable. Dr. Anderson, in his observations upon the fleece, has clearly proved that the pile, produced during the prevalence of hot weather, is visibly coarser than that, which the same sheep affords in the colder season. He supposes that the superior degree of heat expands the pores of the skin, and that the absence of it tends to contract them; so that the pile which is protruded through them becomes thicker or thinner in the same proportion as the diameter of the aperture is larger or more contracted. It is to be regretted that he did not extend his experiments farther, to different breeds of sheep, and observe whether the effect was similar in all of them; for it appears that his flock furnished a copious

supply

supply of the wool-producing humor, and that the the pores through which it passed were constantly full. We acknowledge that these experiments, so far as they proceed, are compleatly satisfactory, and they convince us that "a great degree of heat produces upon the fleece an effect totally opposite to that which has been generally ascribed to it; that it tends to render the hair coarser instead of finer." Probably it might be easy to ascertain the influence of temperature, even in its extreme degree, if a sheep were conveyed to distant climates, shorn there, and the fleeces compared with those which it had yielded at home. If the manner in which wool is produced were more accurately noticed, if the effects of changing seasons were diligently noted, if care were taken to preserve the fleeces which an individual had afforded in different situations, and under varied treatment, so that they might be compared with each other, and if the staple were either measured, or marked at regular intervals of time, we should ascertain a number of facts respecting the production of wool which we are at present ignorant of, and perhaps might be able to procure it in a much more perfect state. Until our knowledge becomes more perfect we must consider the influence of temperature as reduced to a single point, which requires only that the shepherd do not unnecessarily expose his flocks to the extremes of heat or of cold, nor to any capricious changes. If he wish to produce the best of fleeces he muct cultivate the breed with sedulous attention, and no longer attempt to apologize for the want of exertion, by complaints that his flocks do not bask themselves upon the sunny mountains of Leon, nor crop their winter herbage on the genial

banks of the Douro. The most celebrated flocks of these regions have already dispersed their colonies, without injury to the fleece, over the gentler hills of England, the plains of France and Saxony, through some of the dells of Sweden, to the banks of the Plata, to Southern Africa, and the utmost regions of the Asiatic isles.

The effects of dryness and moisture upon wool, although not frequently distinguished from the general influence of climate, are very considerable, and deserve the close attention of the grazier. No measures I believe have been adopted to ascertain the degree in which these causes affect the fleece, and our information respecting them must be deduced from general cases and the prevailing opinion of those, whose employment calls upon them to observe the qualities of wool. There are few persons conversant with this article, who do not perceive when they examine the fleeces of a district, of which one part is much dryer than the other, a remarkable difference in those which each submits to their inspection. Upon the lower grounds, and in marshy countries, we almost invariably find a sheep producing a longer and coarser pile than its neighbours, which pasture upon the more elevated farms. Sometimes the husbandman of these more dry and healthy spots prefers a breed of sheep smaller than that which occupies the pasture of the richer farms, one able to roam much more widely in search of food, and to travel with less fatigue to a distant fold, such as yields a fleece so different from that of the heavier flocks as to admit of no comparison with it in order to ascertain the precise effect of their damper situation. Yet there are some instances in which we meet with members

bers of the same family in both parts of the district, attended nearly with the same care and maintained almost in equal condition, and observe that the wool of the one is shorter, finer and lighter than the fleece of the other. Perhaps the dissimilarity may be partly owing to the smaller quantity of food, which the sheep upon thin lands can collect, to the extra fatigue they undergo in order to obtain it, and to the smaller portion of time which they spend in repose and mastication; but after every reasonable allowance is made for circumstances of this kind, there is a considerable proportion of the effect remaining, which we attribute with some confidence to the superior moisture or dryness of the farms where the fleeces were grown. No stapler, I am persuaded, whose opinion is founded upon a long course of observation, will seek among marshes and vapour for fine wool. He expects to find the fleeces of such situations more coarse, hairy and loose than those produced where the rays of the sun fall directly upon the field, and preserve both the fleece and the lodgment of the sheep dry and healthy. The moisture, which so frequently surrounds the summits of the loftier mountains, and rests upon their shoulders, especially if they be exposed to vapour rising from the ocean, is no less deleterious to the staple than the mists of lakes and morasses. On those mountains of Ireland, of Scotland and Norway, which rise from the shores of the Atlantic and are exposed to its influence, we find fleeces of a very inferior order, when compared with those which the same sort of sheep produce in more sheltered situations; and still farther beneath the value of those, which are procured from the dryer sides of the Castilian and Kermanian hills. The sheep of

Shetland

Shetland, producing a small and valuable fleece although exposed to the influence of moisture in its utmost violence, and the race once diffused over the Highlands of Scotland, and which, notwithstanding the cloudiness of its pasture, yielded a wool much superior to that which is now produced there, may be selected as instances to show that too much is attributed to these causes; and it has been supposed that the improvement, visible in the sheep of Cornwall and of the fens in Lincolnshire, evinces that a moist atmosphere is not so incompatible with the growth of good wool as we have stated it to be. But these instances by no means prove that these breeds of sheep upon drier pastures, and attended with greater care than they are at present, would fail to produce a much better fleece than they have done in a moist one; and the improvements which have been adduced would probably have proceeded with greater rapidity, been effected with more ease, and attained a higher degree of excellency, had they been attempted upon flocks in situations better adapted to their nature and to the good qualities of wool. The bad effects of water upon the pile while growing may be owing to the readiness with which it mingles with the yolk, and carries off a quantity of that animal soap, which is so necessary to the good quality and even the existence of the fleece; for if care be taken to prevent this by the skilful application of tar mingled with butter, which act as repellants to the water, the lower part of the staple, which grew after the mixture was applied, contains a sufficient supply of rich and nutricious yolk, and is a much superior sort of wool to those points of the pile, which have been exposed without protection

protection to the dripping wetness of the wintry season.

Some of the best qualities of wool, especially those of the finer kind of fleeces, have been attributed to the influence of pasture. Large and open downs which receive but little attention from the farmer, where the sheep with great labour can procure only a limited supply of food, have been often represented as absolutely necessary to the production of that soft and attenuated pile, which is universally admired. The finest fleeces, which have been collected in our native country, have generally been obtained from the hills of moderate elevation, and from soils, which cannot boast of being enriched by the fertilizing collections of the farmer's yard. They are the produce of wide wastes, where the individual rights are not distinguishable, but so blended as to form a common property and produce an indiscriminate advantage. Such fleeces, the produce of exhausted pasture and of meagre animals, are commonly much smaller, lighter and finer than those we obtain from lower lands and more highly fed carcases. It appears that the food which a sheep procures is directed by the hand of the universal benefactor chiefly to the supplying of those juices, which nourish it, and produce that plumpness of muscle so desirable in quadrupeds of this description; that the formation of its coat is only a secondary object in the process of nature, and the humor suitable to this purpose is not secreted until that which is essential to the existence and the health of the animal has been produced. Hence it is that the fleeces furnished by the commons, which have been procured from half starved sheep, are uniformly small and light; that their pile is always

ways thin, weak and short ; that the condition of it is low and less mellow than it should be, and exhibits symptoms of improvement near the bottom of the staple. But the sheep grazing in richer pastures, where they easily obtain food, which both satisfies their appetites and furnishes a surplus of the juices necessary to their health, yield fleeces of longer pile, of greater weight and superior condition, less adapted most certainly to many purposes of the woollen manufacture, but considered merely as wool afforded by a particular breed of sheep possess an intrinsic value much superior to the starved pile. The idea that dry fallows, commons and hungry soils, were necessary to the production of good wool, arose in the earlier ages of the manufacture, when the constitution of the sheep was little attended to, and men attributed to the land that which is really the effect of the breed or family of the sheep ; and it is maintained even now by some, who do not discriminate between the different races, which stock the country, so readily as between the soils which compose it. The state of the Spanish flocks and the management of them by shepherds, whose superior skill has been universally allowed, were often adduced as instances, which sufficiently prove the impossibility of growing the finest wool upon luxuriant pastures. It was observed that these were divided into two kinds, the travelling and the stationary ones ; that the latter, which continued through the whole year upon the plains and the best lands of their native country, afforded a wool distinguished neither by its fineness nor other good qualities ; while those, which were compelled to travel from the lower grounds to mountainous provinces, and driven to crop the vegetables

tables of the loftiest summits, upon which they spent the summer, returning to their former folds as the winter approached, yielded a fleece of the utmost beauty, and surprizingly adapted to the fabrication of woollen cloth. Some stedfastly maintain that this superiority of the staple is owing to the fatigue, which the sheep are compelled to undergo; to the climature and the herbage of the mountains upon which they spend the hottest season; that if they had continued on the plains their fleeces would not have been distinguished from those of the stationary flocks; and that if these latter had ascended the mountains, and been managed as the others were, they also would have afforded a superior pile. Yet these gentlemen mention no instance of such an exchange of treatment; they describe no experiment made with a view of ascertaining its effects; they forget that there are as certainly different breeds of sheep in Spain as in any other country, and that the wool of every district, where manufactures have been established and long prosecuted with industry and discrimination, cannot be uniform. Nor is it more consistent to trace the superiority of the Spanish pile to sheep sent from England in the fifteenth century, because the wool of that country had then been distinguished for its superior qualities even here, through more than three hundred years. A few sheep, which at various times have been brought from Spain and grazed upon the lawns of gentlemen, have yielded fleeces much more weighty, coarse and long than were expected from them, and have appeared to sanction an opinion that the wool had undergone a great alteration by the exchange of climate, of treatment and of pasture. A fleece of this kind was shown to me last

last summer, it weighed about nine pounds, and had been well grown in a plentiful supply of rather yellowish yolk, was evidently the produce of a male, and had nearly enveloped the whole animal. The wool was about nine inches long upon the shoulder, and four on the belly, not finer than the usual produce of large sheep, natives of England; but the staple was well formed and exceedingly compact; the hair was evenly disposed and but little curled. This sheep had been brought from Bilboa by a merchant ship, and perhaps, like most of those imported into the country in a similar way, had been taken on board without any attention to the family from which it was selected, most probably from the meadows, which generally surround sea ports, or even from the marshes, which are so frequent near the mouths of rivers. There is no reason to believe that these sheep would have afforded a smaller fleece even in their own country, much less to suppose that they were invigorated by the best blood of the superior breeds. A mattrass, which had been purchased at Cadiz, and supposed to be stuffed with the produce of the neighbourhood, contained the worst wool that I ever saw; it was superior indeed to to the hair upon the shanks of English sheep, but not so good as the breech obtained from the worst kind of our own fleeces. If it be fair to reason from a fact so imperfectly stated, we must conclude that there is a race of sheep in that country, producing wool of a very inferior order, or one whose fleece does not envelop the belly and the legs of the animal. We place but little dependence upon facts so imperfectly described, and mention them only because they point out one method of collecting information, respecting the produce of a country

country which has commonly been very much neglected. The manufactures always contain the best samples of the raw materials. From the most accurate descriptions of the wool of Spain, which have fallen into my hands, there appears to be no ground for supposing that the sheep of that country belong entirely to one family. The state of the travelling flocks is minutely related, while that of the stationary ones is either passed over in silence, or but slightly noticed. Yet from these fragments which lie scattertered over the field of statistical enquiry we gather some hints, which induce us to conclude, that we should entertain just as correct an opinion of the British fleece, if we supposed from some slight accounts of it, which are published, that the breeds of Wiltshire and of Lincoln are precisely the same, as we do of the Spanish when we imagine that the same race ranges the mountains of Segovia and reclines upon the plains of Seville.

If to the richness of the pasture we must trace the existence of coarse wool, as to its primary cause, we should observe it more frequently upon the backs of sheep which are distinguishable for their fatness; and the size of the hair, upon some occasions, would indicate the period when an individual exchanged the down and the common for the meadow and the rich enclosure, for the quality of the pile must become less valuable in proportion as the condition of the sheep improved. Yet on the contrary, it is generally remarked that the fleece shorn from an animal in good condition is preferable to that which it produced when in a leaner state; and that the bottom of the staple, that part of it which grew during the spring, when the supply of food became more

plentiful, and the carcase plump and weighty, is often more valuable than the other portions grown when the fields were least productive.

We are well aware that long wool in its most perfect state cannot be expected from sheep destitute of the quantity of food, which nature requires for her support. When the animal is pinched with hunger, it converts almost the whole nutriment which it receives to the support of the carcase. The imperious demands of hunger must if possible be supplied, and the wool-producing humor, whatever it be, is immediately rendered tributary to the first necessities of nature. This is one of the resources to which she applies in order to preserve the existence and the health of the animal; she sacrifices a small convenience to obtain an essential good, and the fleece remains light as though half produced, while the pile is short and somewhat more fine than it would have been in a richer state. These effects have often been observed in the course of farming. They were much more common before it was the custom among graziers to procure a large supply of winter food; and are still observed when the colder season proves unexpectedly severe, or contending with the growing year for protracted dominion requires that the shepherd dispense his fodder with a sparing hand. Hunger, like cold, contracts the pores of the skin, and renders the yolk, that nourisher of wool, less copious or ill adapted to its natural purposes; affects with keen severity the more tender breeds, but falls with peculiar weight upon the lambs which through two winters have borne their fleece. The hardier race, however, that which looks defiance to mountain storms, and with persevering patience breaks through the

the frozen snow to search its food, which is contented with the coarsest fare of the roughest pasture exhibits in its fleece no such symptoms of injured health or ill adapted yolk, though left to secure and to supply itself.

These effects of hunger upon the fleece should always be attributed to their true cause; they are less connected with the qualities of the pasture than with the constitution and disposition of the animal, and teach us that these should always be adapted to the farm upon which it is placed. The sluggishness of those creatures, which produce long wool; requires that their food be rich, plentiful and at hand, while the mountain breed, endowed with a roving temper, which disdains the boundaries of a narrow pasture, seeks its nourishment through an extensive range, although it could procure it in the largest abundance with the least possible exertion. The sheep, like most other animals, is a creature of habit as well as instinct, delights in the modes of life to which it has been accustomed, and changes its dispositions only by degrees or the combination of blood. Both Bakewell and Culley were well acquainted with its peculiarities, and have succeeded in their attempts to produce a breed, in which symmetry of form is united with wonderful adaptation to circumstances. The sheep of Dishley, heavy of fleece and of temper, have diffused themselves over the richer fields of Leicestershire and Lincolnshire; while those of the Cheviot hills, bearing light fleeces and having long and well formed limbs, scale the mountains of the North and of Scotland.

When this nice adjustment of the breed to the circumstances of the farm is attained, when the quan-

tity of food is sufficient to preserve the health of the sheep, and to supply its fleece with an abundance of valuable yolk, when the flock enjoys that ease and comfort which all animals desire, the mere richness or poverty of land seems to have no influence in rendering the fleece either coarser or finer. In the course of a few months flocks are sometimes obliged to change their pasture and to feed upon soils of a very different description; and yet if their food be sufficient and their comfort undiminished, I presume no one has ever observed a variation in the fineness of the pile. When under such circumstances they have even exchanged the grasses of the mountains for the most nutritious kind of aliment, their fleece, it is thought, has not become more coarse than it was formerly. This opinion is countenanced by the experiments of a learned and judicious agriculturist, who has sought to diversify the monotony of professional engagements by rural occupations, and upon his judgment and accuracy we rely with unsuspicious confidence. But when a sheep which had been accustomed to labour for its food obtains it with great ease, and spends more hours in repose and mastication, the staple of its fleece, although it retains its fineness, becomes considerably longer. This effect is often observed in the different flocks of the same parish, sometimes in the individuals of the same farm. 'Tis however the effect of ease rather than of pasture, and should be attributed to that as its proximate cause.

The extraordinary fineness of Spanish wool, the object of English envy through almost seven hundred years, was long attributed, among other causes, to the peculiar herbage of the mountains, upon which

which the sheep spent their summer months. They furnished, it was asserted, a large supply of aromatic plants which the flocks distinguished with the utmost nicety and devoured with the greatest eagerness; so that it was deemed from this circumstance utterly vain to attempt the production of an equal pile in any country, which possessed not the means of supplying the flocks with the same delicate nutriment. But a traveller, who examined the pastures of Spain with a botanic eye, assures us that these boasted plains, elevated far above the level of the sea, do not yield grasses materially different from those of other districts, under the same parallels, and of equal elevation. We should expect, if such were the cause, that the fleeces collected from the sides of the towering Pyranees, would be equal in point of goodness to those of acknowledged beauty collected from the hills of Castile and Leon; that they must resemble the pile, which covers and adorns the shoulders of the Alps and the Appenines, of the Caucasian and the Altaic chains; those of Atlas, Syria and Persia must be nearly alike; nor could a great dissimilarity be observable in the more humble coats of England whether produced upon the South Downs, the Cotteswold, or the Cumbrian hills. Nor would it be wise in any case to attempt the improvement of our flocks without producing a correspondent change among the plants of our farms; instead of turnips and cole seed we must cultivate thyme and marjoram. But we reason no longer upon these points from theory or general facts, the question is clearly decided by the establishment of Spanish flocks in every quarter of the globe, in countries whose soil, temperature, climate and herbage differ most widely. In every place, if pre-

served from the contaminating influence of inferior blood, they yield a fleece of a superior order, unaffected either by the difference of food or of treatment; as distinguishable for excellent qualities as that of their progenitors.

But the judicious woolstapler is by no means inattentive to the nature of the soil upon which the sheep have been pastured. Calcareous earths, when mingled with the pile, produce a very singular effect upon it, and form the characteristic feature of that kind of fleeces, which the manufacturer distinguishes by the name of chalky wool. These substances render it dry and hard, destitute of that lustre and yolky appearance, which most other wool possesses, and that felting quality, which fits it for the operation of the fulling mill; a process absolutely necessary in the fabrication of woollen cloth, but it is readily dispensed with in the production of some other articles. Perhaps this kind of earth produces its pernicious effect upon wool by absorbing that yolk which is so intimately connected with the best qualities of the fleece, or by destroying that peculiar combination of the fluid, which renders it best adapted to the nourishment of the pile. All mixtures of earth with this substance, even that of pure silicious sand, render it less proper for the purposes to which nature has destined it, and it should be one object of the farmer's care to preserve it free from the smallest adulteration. He will perceive a very material difference betwixt the effects of lime stone and of chalk upon his fleece; for the former, which is generally covered with a stratum of vegetable earth, does not so easily mingle with the pile and often produces it in very good condition, though seldom possessed of the best

of

of qualities. There is one fact respecting this kind of land related very vaguely in Dr. Aikin's Description of the Country round Manchester, which deserves the close attention of both the grazier and the wool-stapler. It is intimated that if flocks of sheep precisely of the same breed, and I suppose in the same condition, be placed, one upon lime stone, and another upon grit, and kept there for a given time, the weight of the former will exceed that of the latter by four pounds per quarter, and "that there is a still greater difference in their fleeces." Perhaps upon minute inquiry it might be found that the observation had not been made with all the accuracy, which agricultural experiments require, or that the sheep pasturing upon the gritstone had endured either more hunger or more fatigue than their comrades; a circumstance which seems to be indicated, at least to a person who is not a grazier, by the inferior weight of the carcase. A course of experiments calculated to illustrate the effects of the various soils upon the fineness, the length and the general qualities of wool, would be acceptable, to the shepherd, and instructive to the manufacturer. At present, we imagine, that to produce their fleece in its best state sheep should always crop a luxuriant herbage, in dry situations, on loamy soils, beneath a temperate sky, and lodge upon the thickest carpets of verdant nature.

Here again we should observe, and the remark cannot be made too often, that the influence of pasture, climate and temperature are entirely subordinate to that of blood. 'Tis upon this the greatest changes depend, to this we look for the best improvement of flocks, 'tis this which first demands the shepherd's

herd's care, which he must regulate according to the unalterable circumstances of his farm, and to the demands of the manufacturer. In a business so delicate, and which relates to a substance so susceptible of change as to be rendered in the space of a few years extremely good, or destitute of valuable qualities, he should observe every process with the utmost attention; should possess a profound knowledge of nature, of the woollen manufacture and of commerce.

Happily the age is long since passed away when he seemed a loiterer with his flock, more ambitious that the valleys should resound with the melody of his reed than that his sheep should exhibit proofs of his superior knowledge and attention; when he was more employed in whispering the soft sentiments of the heart to a blooming shepherdess, or receiving from her lovely hands the variegated garland, than in attentively noticing the form of his sheep and the peculiarities of their fleece; when he formed the gay circle and "lightly tript it o'er the green," instead of marking the hints, which nature daily gave him of her hidden operations, comparing them with each other under the direction of inventive genius tempered by the soundness of judgment and the maxims of experience; instead of noting the progress of manufactures, catching the first symptoms of improvement, and adapting the produce of his flock to the rising demand. From Arcadian plains indeed the too happy and unsuspicious swain has been driven by the brutal violence of a morose and phlegmatic conqueror; but from the British fallows the lazy loungers, who after basking all day upon the headland, found it irksome in the evening "to plod with" heavy "step their homeward way," have been allured

ed, not driven, to useful employments and social habits. The calling of the shepherd is at length united with the pursuits of the naturalist, and the combination of knowledge with laborious industry is doing much to improve the sheep of the British isles, to confirm the stability, and extend the circulation of their manufactures. The experiments directed by the genius of Bakewell, and so happily seconded by the judgment, eloquence, fortune, influence and philanthropy of the late Duke of Bedford, will long render their names favorites of memory; while succeeding generations reap the benefit of their efforts in the improvement of flocks and the amelioration of their wool.

So susceptible is the fleece of improvement that it most readily rewards the attention which is paid to it. If only freed from the thorns, burrs and filth, which it formerly collected from ill managed fallows, if it be nourished almost any where than upon balks, which produce little more than rushes or dry and insipid grass, and if it be relieved from those insects, which so often infect it and torment the sheep, it assumes a better appearance and becomes actually more useful. It is obvious to every one, who has observed with the slightest attention, that dirt, leanness and disease, are as detrimental to brutes, as filth, poverty and hunger to human beings.

After having determined what kind of wool the farm, which he occupies, is best calculated to afford, the sheep-master should endeavour to obtain from his flock the most perfect fleece, as uniform in every part of it as nature will admit. We see no reason why any person should be ambitious of raising in one flock, and especially upon the back of a single sheep, those various kinds of wool, which are adapted to manufactures

manufactures very different in their nature, and often placed very remotely from each other. In the old system of sheep farming this was a very common defect of the fleece, and is not entirely removed under the new one. I have never yet met with a single instance, in which a lock shorn from the buttocks of the animal was not greatly coarser than another, which had been taken from the shoulder, although in some cases they have borne a much nearer resemblance to each other than I once thought it possible to attain. There are fleeces, we are told, so uniformly alike through the whole extent that persons accustomed to observe wool, and even manufacturers, have been unable to distinguish any difference in the fineness of the pile. When staples separated from different parts of the sheep have been presented to them, if any discrimination was made, they have sometimes pronounced that to be the best, which grew most remote from the vitals. Such is the description, which Dr. Parry gives us of the fleece of his new breed of sheep, obtained by combining the blood of the Spanish with that of the Ryeland race. The fact deserves the attentive notice of the wool grower, for the advantages which would result from a single sheep producing only one kind of wool, and that equally fine from every part of the body are utterly incalculable; they are obvious to all. The possibility of procuring such a race seems to be ascertained by the facts just alluded to, and it is probable from the state in which we find the coats of other domestic animals.

Every one, who remarks the condition of the fleece when offered to sale, is aware that a great number of extraneous substances are mingled with the pile. The purest fleeces of Britain, which on account

count of their excellent qualities might rank with those of almost any other country, are generally encumbered with yolk, sand, grass, pitch and even the excrement of the sheep. We know not whether it be possible for the grower to obtain his wool perfectly pure and undebased, without incurring an expence, which in many cases could not be reimbursed; perhaps spending more time and exercising more labour than would be compatible with the attention, which the more important duties of the farm require of him. Yet, without sacrificing his interest to unnecessary precision, it is desirable that the staple should approach as near as possible to the state of absolute freedom from every thing that imposes a tax upon the manufacturer, or renders his employment more tedious and difficult.

The yolk, which has been so intimately mingled with the pile through the whole period of its growth as to form with it a compact and almost impenetrable coat, does not compleatly separate itself from the wool by the mode of washing adopted in Britain, even though the operation be performed in the best constructed pool, and by the most careful workmen. The Spaniards, more aware of the advantages which result from the purity of the pile, shear their flocks without subjecting them to the alarm, which agitates most quadrupeds when forcibly plunged into an element, for which nature and their habits render them peculiarly unfit. The staplers there break the fleece while in the yolk, and wash the sorts produced from it with a degree of care worthy the imitation of a British manufacturer; and attain to a point of purity almost unknown in English fleeces. If the sheep be washed before shearing ever so perfectly, and the utmost

care

care be taken to preserve them clean during the interval between the two operations, the perspiration of the animal, when exposed to the fervour of the sun beams and oppressed by the weight of a coat better adapted to the winter months, mingling with the fleece, again debases its staple. English wool in the best state, in which I have ever observed it clipped from the back of the sheep, has contained about one-twelfth part of its gross weight of this substance, important to the fleece while growing, but of no value whatever in the process of manufacture; often it is mingled with one-eighth of its weight; if heavily tarred, as in the north of the island, the quantity of pure wool seldom exceeds one-half; and in some cases is even considerably less than that. The very great difference of condition, in which British fleeces are brought to market, accounts in some measure for the variation of prices, which are often mentioned as the current rates of wool, in distant districts during the same season. To form any proper idea of its intrinsic worth, and to obtain a well founded opinion of the relative value of our own fleeces, or those which are imported from other countries, it is necessary to reduce them to the standard of perfect purity, to compare only wool with wool. That point is already determined by the treatment, to which wool is submitted while under the hands of the manufacturer. In some part or other of the process, by far the larger proportion of the pile is scoured with soap and boiled in water; and when it will endure this operation, without losing a portion of its weight, we venture to pronounce it sufficiently clear of yolk for all the purposes of manufacture.

The present mode of washing sheep in some parts of

of the kingdom, especially where water is scarce and the shepherds careless, instead of separating from the fleece all the sand, clay and other kinds of dirt, with which it is encumbered, supplies it with a still larger proportion. The inefficacy of plunging the sheep into stagnant water and muddy pools, of driving them two or three times through a rivulet rendered turbid by their passage, we should suppose is obvious to all; and the inconvenience, which often arises from driving them while wet along dusty roads, of lodging them in that state upon dry fallows and sandy soils, is visible in the colour and the grittiness of the staple. 'Tis seldom that we examine a parcel of wool without finding more or less of those substances, which render it impure, and are thoroughly convinced that it is not always possible even for the most careful farmer to prevent its contamination. The conduct of many graziers, who during the period in which the fleece is preparing for the shearer's office, watch it with unremitted attention, and endeavour to obtain their wool free from every alloy, is an annual reproach upon those who seem to wash their flocks without any definite object, because it is the custom of the district where they live, and who neglect them entirely while their fleece is drying.

The custom of marking sheep by means of melted pitch or a mixture in which it forms the principal ingredient, is very detrimental to English wools, especially the larger kinds; often rendering them absolutely incapable of being applied to the manufacture of worsted goods, their natural and appropriate destination. It has long been complained of, and premiums offered for the discovery of a composition, which shall answer the same purposes without being injurious

to the staple. The brand, as it is at present used, causes a great deal of trouble and some expence, for in the early stages of the manufacture it must be separated from the fleece, and boys are generally employed in performing this service at the rate of a shilling or half a crown per week. The wages given for this work when not combined with any other, is commonly about a farthing where employment is scarce, in other places a halfpenny, for every pound of branded wool. When a fleece has been rolled up, according to the usual and legal method of winding every part of it is so distended, often so torn and mingled together, as to render it utterly impossible that the workman should spread it before him in its natural order. He is then obliged to spend a great deal more time, than would otherwise have been necessary, in examining every fragment which passes under his eye, and in searching for the pitch mark, which is always extended over a considerable space, and sometimes entangled with every other portion of the fleece. When separated from the other parts he throws it to one general heap, which passes to the clipper, and when sufficiently cleaned, returns to himself, and undergoes a second time the operation of sorting. But when sheep are not branded with pitch, or any any other substance injurious to the staple; none of this additional expence and labour is incurred, every part of the fleece goes off from the board to its proper sort, and is immediately ready for the manufacturer. Perhaps the best mode of preventing the inconvenience, which the brand occasions, would be to take it from the fleece before the sheep be shorn; then it is easily found, is compact and might be separated from the wool with little trouble

trouble to the shearer, or inconvenience to the person who employs him.

We are pleased to observe that of late years sheep are not commonly allowed to carry behind them those immense loads of their own excrement which so frequently disgraced the most verdant and beautiful of pastures. At present they are generally kept clean and unincumbered; a symptom of their owner's improving taste and humanity. Nor have the staplers so much reason to complain of those shameful deceptions, which were once attempted to be practised upon them by rolling up a large quantity of the fæces with the fleece in order to increase its weight. At present, if deceptions are practised by the grower, they are commonly those of a more ingenious kind, such as he thinks will always remain undiscovered, or that the vestiges of them will be traced to some other cause than the moral turpitude of his disposition. Yet when we find a line of sand strewed along the unrolled fleece, or trace the evidences of its being wound in a moist state, circumstances which even a novice in sorting can distinguish; when we notice that the parcel is piled upon a damp floor, in the north east corner of a barn far from the influence of the atmosphere and the sun, as though jealous of their evaporating power; when we see these things we cannot help attributing them to some cause not always accidental. And should such parcels be weighed by the stapler with a little unusual dexterity the grower must not be severe, for one deception is instituted only to counteract the effects of another, and it would be a mere chance which was most successful had not the stapler the advantage of being last player; as such he is almost certain of winning the

trick. But we plead not for deception; the man who stoops to use it is a villain, and his character ought to be posted through society. In these enlightened times but few, we hope, are so destitute of honour and integrity, esteem the consciousness of virtue at so low a rate, and understand their interest so little, as to ask the favours of fortune by sacrificing at the shrine of dishonesty the first principles of social order.

It is not probable that persons, whose attention is repeatedly called to the properties of wool, should be entirely ignorant of the readiness with which it imbibes moisture, but perhaps few are aware of the tenacity with which it retains it. A quantity of wool, which betrayed no symptoms of an extraordinary degree of moisture, has been submitted to a strong degree of heat and dryed even to crispness. When examined, being still warm, it was found to have lost one eighth part of its original weight, which it nearly recovered in a few days by being exposed only to the common influence of the atmosphere. Perhaps this disposition to attract moisture may be the circumstance, which has led some to suppose that wool grows after it is separated from the sheep. The fact is not probable; and the increase of weight, the only circumstance upon which the opinion rests, is easily accounted for upon more satisfactory principles.

At the genial season when flocks are disburthened of their coat, and pay the annual tribute due for the protection and sustenance which they have received, it is common to collect them within some grassy inclosure near to their owner's dwelling; often within the precincts of Pomona, where with ruddy smile she ripens her autumnal blessings. With the best intention

tion the superintendant of the busy scene directs that the sod be smoothly shorn, but unsuspectingly produces by that means a vast variety of short bits of grass, which notwithstanding his utmost care attach themselves to the staple and are rolled up with the fleece. They do no material injury to the pile, but cause a great deal of trouble to some future workman who picks them out of it; for at some stages of the process, through which wool passes before it reach the consumer, they must be separated. If twisted into the thread and wrought with the substance of the cloth they become the object of the burler's notice, who leaves, for every particle which is extracted, a hole in the piece to be repaired at the fulling mill, or by the nicer operation of the fine drawer. The trouble occasioned by the intermixture of dried vegetable particles with the wool is very considerable, whether they be collected from the weeds so commonly produced upon ill managed land, or from the hay, which owing to the usual structure of the rack, and by permitting the sheep to pull their fodder from the stack, or to crowd under it for shelter, drops its seed and smaller particles upon the fleece, especially that part which grows near to the head. The shepherds upon the Downs of Marlborough, if I mistake not, have adopted the use of another kind of rack, whose structure promises to obviate some of the objections made to the old one.

Some of these circumstances may be considered as trifling ones, and beneath the attention of the wool grower. Perhaps we may be told, as we have been already, "that several of them are calculated to furnish employment for different classes of work people, who without it must become burthensome to the pa-

rishes where they belong; that the true reason why we object to the filth of the wool, its brand and the dag-locks, is the price at which they are purchased; and that if the fleece were really rendered lighter and more valuable, by the absence of impurities, staplers would give no more per tod for it than if the parcel had been in a fouler state." 'Tis wonderful to observe with what an air of sapience these remarks are sometimes adduced; and when disdaining to reply to them because it is impossible to communicate discernment to stupidity, or to derive information from prejudice, the triumph over us has been undisguised, and sometimes followed by the loud laugh of ignorance. But of late years wool-growers have been better instructed in the principles connected with their occupation, have ventured to dispute the wisdom of their great-grandfather's maxims, and to differ from antiquated practice. Some of them are now convinced that every expence which the stapler and even the manufacturer incurs, whether it be on account of waste, carriage or labour, falls ultimately upon themselves. They admit this most obvious of commercial maxims, viz. that the price, which the consumer pays for an article, is upon an average of years neither less nor greater, than the sum which forms the total of the prime cost of the materials, the expences incurred in manufacturing them, and the reasonable profit of those whose capital and skill are employed in the fabrication. If therefore, while the price of goods continues the same, and the unavoidable expences in producing them vary; if there be any alteration in the total sum, whose items we have just described, then the surplus, or the deficiency must be placed to the account of the farmer, and his pocket will undoubtedly

edly receive the one or be obliged to furnish the other. This position would be most abundantly verified, did it require any confirmation, by adverting to the history of the woollen manufacture only during the last twenty years. It is the interest therefore of the wool-grower to contrive by every possible means to reduce the necessary expences of the manufacturer, to send his wool to market in that condition, which will require the least time and labour to return it in articles adapted to the common purposes of life. No circumstance connected with this object can be trifling. No measure calculated to attain it can be unworthy of notice. It is not possible that a person of common sense should really suppose that the stapler purchases dirt and impurities of any kind, which happen to be combined with a parcel of wool, at the price given for the staple. In appreciating fleeces, the waste, carriage and expences of every kind must be objects of calculation; they form a sum to be deducted from the intrinsic value of the fleece if in a pure state, and both manufactured and consumed upon the spot where it is grown. The farmer then, who sends filthy wool to market, transports manure, which might be well applied upon his own land. He sends it to the fields, sometimes of far distant counties, and pays for the carriage of it thither an extravagant price.

In the management of wool, especially if we would obtain it in a perfect state, the time of shearing though not of prime importance is a circumstance deserving of some attention. It has frequently been asserted that the fleece, if left entirely to the operations of natural causes, detaches itself from the skin of the sheep, and falls off, leaving the animal covered

ed with a short and soft down, which proves to be the new coat in the incipient stage of its growth. The effect takes place during the prevalence of hot weather, and may justly be considered as one mark of that wisdom by which the Creator, always provident for the comfort of his creatures, has distinguished every part of his works. Yet the decidence of the fleece does not appear to be a characteristic feature of the tribe, an universal law to which all sheep are subject, because some individuals have been observed to retain their coat through two whole years, a few have carried it even through three summers. We are not aware that this faculty of retaining the fleece is entirely confined to any particular breed of sheep; it has been noticed in several of the English varieties, both those of the native stock and mingled with a foreign race, and the fact is not entirely unknown either in Spain or in Germany. Nor is it a quality common to every individual. The breeds producing the finer kinds of wool often peel or loose a portion of their coat early in the spring, and before the summer had passed would probably part with the whole of it in the same manner, did not man interpose and appropriate to his own use that covering, which has become superfluous to the quadruped. The pile of the long-wooled sheep seems to be much more firmly attached to the pelt than that of the other breeds, for if the animal be kept in good condition, and in good health, throughout the whole period when the wool is growing, and if well attended by the shepherd, so as to promote its comfort, there is no symptom of a disposition to cast the fleece; it is retained, if the staple be any criterion, with equal firmness through the coldest and the hottest seasons, while those sheep, which

which have been kept upon commons all the winter, or even in enclosures upon hard fare, will part with it very easily, when the food becomes more plentiful, and the condition of the animal is restored to its natural state. When the flesh of the creature has declined during the winter months, and nature demands more nourishment than can be procured, the secretion which produces wool seems to be destroyed, or applied to other purposes of nature, and the fleece which has been deprived of it, appears incapable of re-imbibing in the spring the renewed juices, but remains upon the pelt through the succeeding months, merely a dead substance; and when the natural juices are again secreted, they form a new fleece, which gradually displaces the old one. Probably at first, the new hairs are produced from a scanty yolk, for they are almost uniformly pointed, and grow gradually thicker, untill they occupy the whole diameter of the pores through which they pass. If the low condition of the sheep be connected with the decadence of the fleece, and the real cause of it; and since none of the double fleeces exhibit any symptoms of an unhealthy state, or a low degree of flesh during the whole period of their growth; it seems probable that every sheep, if proper care were taken of it, would retain its coat.

Appearances observed in the fleeces, which have grown through two or three successive years, render it probable that the staple ultimately attains its maximum of length; but whether it would continue upon the back of the sheep, or detach itself from the pelt, giving place to a new pile, which would continue to grow through the same length of time, and then like the preceding coat become useless to the animal and be

be laid aside, we know not. No experiments that I have yet heard of, have been instituted to ascertain the point, nor have we been sufficiently curious in England to note the progress of the growing pile in the different seasons of the year. M. Fink, of Cositz, in Saxony, has communicated to the Board of Agriculture, an excellent paper upon the subject of sheep, and observes "that by clipping them twice a year, a practice common in Germany, one tenth more wool is gained than by clipping them only once; that a sheep clipped once in two years; will certainly give one-third less wool than if it had been clipped four times in two years, and a sheep shorn once in three years, will furnish but half the wool it would have given, if it had been clipped six times in three years." M. Fink adds, "the longer the wool the less quickly it grows, till at last, when it has attained the length appointed by nature, it entirely stops and does not grow longer." Unfortunately this intelligent wool-grower, who has detailed his observations in general with a great degree of precision and perspicuity, has not informed us whether the different proportions, which he has given us, of the fleece grown through one, two, or three years, be deduced from the weight, or measure of the staple. If from the former, was the wool washed, or in an impure state? If weighed in the yolk, the proportions which have been stated, may be very erroneous; because the fleece which has grown through more than one winter, exposed to the moisture of the season, may have lost a very considerable quantity of that yolk, which it would have retained, had it been shorn at two separate periods. This very curious paper, although unsatisfactory upon this particular point, deserves

deserves the closest attention. It relates facts in the natural history of the sheep not commonly met with; and intimates that the wool of the larger German breed, attains its utmost length when continued upon the back about four years, and even then exhibits no more symptoms of separating from the skin, than the hair does of falling after the same period of growth from the human head. It furnishes data from which we infer that the utmost length of staple produced from that race of sheep is about thirteen inches, and leads us to conjecture that with proper care, every animal of the species might be rendered capable of retaining its coat through any length of time deemed convenient.

Hence it appears that the time of shearing, if the flock be in a healthy condition, may be regulated entirely by the will of the shepherd, and the kind of wool, which he found it most adviseable to cultivate. If the prejudices of the country would admit of it, and the manufacture required a very short and delicate staple, such would be easily procured by shearing the fleece at two different seasons. The wool which had grown through the winter quarter, if we may judge from the prices given for it by foreign manufacturers, who are accustomed to work both the spring and the autmnal fleece, would be more valuable than that, which is produced only in the warmer season. But the difference in price is more than compensated by the additional quantity of wool; and for several years it was observed, when the price of the article was advancing, that the autumnal fleece in Germany sold for more money than that which had been shorn and disposed of in the spring of the year. Most of the breeds of fine-wooled sheep in Britain,

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it should be recollected also, produce a staple complained of by those who fabricate it into woollen cloths, on account of its exorbitant length ; a defect which would be most effectually remedied by clipping it more frequently. But in this country where woollen manufactures are established most various in their nature and object, and not less so in the material they require, the sheers must be used with extreme caution. A large proportion of the British fleeces would be intirely spoiled, if separated from the animal oftener than once in the season. The worsted manufactures almost universally demand wool of twelve months growth ; the hose trade could scarcely subsist without it ; and some portion of the pile yielded by the finest of our flocks, is so tender as to require its utmost length, in order that it may pass without injury through the process of carding and of fulling. Yet there are numerous fleeces, whose good qualities I am persuaded would become more conspicuous if shorn more frequently, and whose particular destination in the course of manufacture does not forbid it.

If it be possible also to procure a race of sheep distinguished for the fineness of its pile, and capable of retaining its coat through two summers, a ready way is pointed out of obtaining long wool of a far superior quality to any that has hitherto been produced ; such perhaps as would enable our worsted manufacturers to rival the envied beauty of the Indian shawl, and to imitate the most delicate textures of cotton and of silk. The mere possibility of producing such a kind of wool, should rouse the attention of the gentlemen in Norwich. They are best able to describe the purposes to which it would be applicable ;

cable ; the immense value of such a manufacture, in a country situated as ours is; and to point out the intrinsic value of a fleece which must far exceed that of all common productions. Yet in speaking of a material so uncommon and so valuable, it is not necessary to hint at the possibility of procuring it ; already the blood of the Merino race, with its soft attenuated pile but litte debased, has so far affected some individual fleeces, both in Britain and in Saxony, as to fit them for the fabrication of worsted goods, possessing a delicacy of texture suitable to the most sanguine expectation.

But if the character or condition of the flock be such as renders it probable that the fleece will loosen from the skin during the prevalence of hot weather, then nature herself points out the proper time for shearing it. Yet, when sheep produce wool sufficiently short to meet the wishes of the manufacturer, the operation should be deferred, at least if no particular advantage to the animal is to be obtained by clipping it sooner, until the new coat appear like a fine downy substance mingled with the bottom of the staple; for this being shorn with the old fleece renders the pile more suitable to the manufacture of woollen cloths. It is naturally soft, fine and unelastic ; contributes to the delicacy, solidity and strength of the thread into which it is twisted ; and can be brought to display upon the surface of the cloth the superiority of its qualities. In the blunt language of the clothier, who often expresses his ideas in very appropriate, though not always in the most elegant terms, wool of this discription is distinguished by the epithets foody and flowery: words imme-

diately conveying to an English ear, a conviction of the high estimation in which such fleeces are held.

In large wool, that which is applied to the manufacture of worsted goods, a portion of the incipient coat is of no value, because it would be completely separated from the longer part of the pile by the first process through which it passes. This division of the longer from the shorter hair is one of the chief purposes, to which the comb is adapted. In all those articles also, though produced from long wool, which are wrought with the carding machine after the manner of woollen cloth, where the principal object is to procure a long and well formed knap, this short and downy substance cannot be of essential service. Large wool therefore should be shorn so soon as the staple is sufficiently long to answer those purposes, for which the manufacturer intends it. Should the grower find it difficult to determine this point from his own judgment, his stapler, if he be a man of observation and liberality of sentiment, will most readily inform him.

Some very humane people have railed loudly at the barbarous custom of pulling the fleece from the back of the sheep, instead of separating it by the use of shears. Indulging the imagination too freely, they have given vent to the sympathetic sentiments of their hearts, in language admirably adapted to rouse every indignant passion against the cruel tormentors of a creature so meek and helpless. They describe its agonies under the operation in terms which make the spirit bleed, and render it almost ambitious of emulating apostolic fame, by travelling among these rude barbarians to teach them the first principles of humanity. Yet while we venerate the feelings, from which such descriptions proceed,

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we can scarcely avoid smiling at the caricature which they exhibit, recollecting that the practice is adopted only where the sheep detach their fleece every returning summer, aud that the operation is performed at a season, when it is so loosely affixed to the animal, as to be separated almost with a touch ; that a great part of it has already been left among the thickets where the sheep has broused, or upon the rude hillocks where it reclined ; and that the office of these violent hands is sometimes rendered unnecessary by the pressure of the sheep against each other, when the flock is driven into a narrow compass. The shears however are useful instruments, by their assistance a careful workman both separates the wool without giving the smallest pain, and collects that portion of the fleece, which without them would have been scattered among the shrubs, or lost upon the wastes. The late Empress of Russia introduced twenty foreigners into her dominions, to teach her subjects how to perform this humane and simple operation.

Such are some of the principal objects in the management of the fleece, to which every shepherd's attention should be directed, who is ambitious of sending his wool to market in the most desireable condition. He should particularly remark its uniformity of pile, its purity, and perfection of growth. There are other circumstances connected with the management of the sheep, to which the production of fine wool has often been attributed, and for that reason they demand our notice.

It was formerly considered as absolutely necessary that the sheep, from whose sides the most valuable wool was expected, should quit the pastures, which had nourished them during the winter season, and

travel to others situated in a more northern or elevated region. It was remarked that the flocks of Spain, which spend the shortest days upon the sunny plains of Estramadura, Seville and Cordova, the longer upon the mountains of Castile and Leon, and the intermediate ones in passing from one station to the other, produced a much finer pile than those which had not been subjected to the fatigue of two long journies in the course of that period, which is commonly deemed necessary to the perfection of their fleece. Without adverting to other causes, the difference was sometimes attributed entirely to the motion necessarily arising from one system of management, and the stationary state resulting from the other; and it was deemed impossible to produce in countries, which have no such extensive wastes, and variety of climate as Spain possesses, and where the institutions of society prevented such an exchange of pasture as is allowed to her flocks, a covering equally excellent. But when this breed of sheep was conveyed to France, it was soon discovered that this system of management was not necessary, either to the health of the flock, or the perfection of its wool. In Saxony and England the experiment has been repeated with equal success, and in Sweden the Spanish race instead of travelling to distant mountains for the purposes of fatigue or a change of climate, remain within doors through more than half the year, and still preserve the goodness of their coats. Indeed the notion that travelling and fatigue are necessary to the production of fine wool is almost exploded; it would be highly improper to impose them upon the heavier kind of sheep, for by injuring the health of the animal, or reducing its flesh, they would

would certainly contribute to the deterioration of the fleece. The lighter and more restless animals take a great deal of exercise, ramble far over the Downs, and very commonly produce a fleece of superior quality; but the fineness of the pile is the result of blood, it has no more connection with fatigue than with the length or form of the tail, or the existence of the horns; both these and the fleece may be changed at pleasure.

In countries where the finer wools are produced, some have observed that the shepherds inclose their sheep every night in buildings reared for this purpose, and to this circumstance attribute the superiority of the fleece. Doubtless every attention which contributes to the health and comfort of the animal tends to improve its pile. But cotes were not erected with this particular view; they were first adopted when the beasts of prey prowling near the pasture and the building disturbed and endangered the flock, and are now resorted to chiefly in countries where these animals remain, or have been but lately extirpated: in some others, they are made use of from mere habit. The practice of cotting sheep, having been adopted by their forefathers, a few of the present race of shepherds for that reason continue it; while others, who have observed its effects with more attention, have both praised and censured the custom. But to crowd a large number of sheep together in a low damp and close building, although the fleece may possibly derive some advantage from the superior quantity of yolk which is furnished, must frequently be attended with the most pernicious consequences. Sometimes in the course of a single night, hundreds of the flock have been lost by suffocation;

and it must be always dangerous to turn out the sheep from these steaming prisons, poisonous as the dungeon of Calcutta, exposed to the chilliness of the morning air. That animal must derive his blood from the most hardy of progenitors, which can endure treatment like this without suffering a contraction of its pores, and a consequent injury to the wool. The French observing that cotting of sheep has done harm when injudiciously managed, recommend that the cotes be large and airy, and that the flocks be kept within them until the dew is evaporated from the ground; or in plainer language they desire us not to expose the flock to the extremes of heat and of cold, or to sudden transitions from one to the other. If managed with due care cotting may doubtless be made subservient to the goodness of the fleece by preserving the health of the sheep, promoting the regular production of the yolk, and preventing the destruction of it by the heat of the sun and the dripping showers of heaven. But in all cases where it injures the sheep it must be detrimental to the fleece.

The use of artificial grasses in the new mode of farming, which has been so generally adopted in most parts of the kingdom, was often assigned as one principal cause of the degeneracy, which has been observed in wool, in those instances where a district has changed the peculiarities of its fleeces. The pernicious effects of clover, coleseed and turnips, were a few years ago the common themes of those manufacturers and staplers, who found that the fleeces which they had been accustomed to purchase and to use had been almost banished from the districts where their connections were formed. Without

out considering that the cultivation of these plants enabled the farm to carry a heavier kind of stock, and that the shepherd in consequence of this was induced to alter the constitution of his sheep, they attributed to the mere succulency of the grass that which was really the effect of blood. They could not but observe the alteration, which the fleece had undergone, they could not but lament it because the pile was sometimes rendered unsuitable to the purpose for which they wanted it; although in some cases, considered merely as the production of a farm whence the grower must derive a profit, or as a fleece adapted to some other branch of the manufacture, it had been greatly improved. If a district into which the new husbandry was introduced had formerly produced long wool, suited to the worsted manufactures, it became stronger and better adapted to the violence of the comb; and if the finer fleeces had usually been afforded there, the pile was more mellow, soft and valuable. The alteration was most severely felt by those who had purchased the smaller and finer kinds of combing wool, adapted to the hose trade, and those small fleeces produced upon the commons which abounded even in the richest districts, and were used in the fabrication of woollen cloths. It is desirable that in all improvements in the system of agriculture, especially those calculated to enrich the soil and furnish a larger quantity of food for sheep with less labour and fatigue to them, that the wool-grower should take pains to improve the pile of his old flock rather than introduce a new one upon his farm. The former is already required by some established manufacture and will become better adapted to it, but the other may be very unsuitable

able to the demands of trade and the wants of the neighbouring staplers; and if every alteration of the stock tended to make the wool coarser or longer, the general produce of the kingdom must degenerate.

It is most certainly desirable that every farm should be stocked with the kind of sheep most suitable to the quality of the land; but flocks have often been noticed, which seem to betray some want of attention on the part of the wool-grower to this material circumstance. Sometimes he has been observed attempting to produce a weighty fleece upon soils naturally poor and thin, and which afford a supply of food so scanty as to require a degree of labour to procure it not reasonably to be expected from heavy tempered and overburdened animals. The most remarkable instance of incongruity betwixt the fleece and the soil, which I ever observed, was near to the road, which passes from Downham in Norfolk to Brandon. The pasture was one of the thinnest kind, and the flock evidenly a mongrel breed, in which the blood of the Norfolk race was mingled with that of the heavy polled sheep frequently found in some of the neighbouring marshes. Perhaps the farmer might possess a quantity of richer land to which this breed of sheep was well adapted, and that it was merely an accidental circumstance which occasioned them to be observed upon a soil so thin and unproductive; it behoves us therefore to suspend our censures and to give the shepherd credit for a more considerable degree of judgment than he appeared to possess. We can seldom observe the converse of this case, because small fleeces when grown upon rich soils are generally improved by them, and we suppose that the shepherd will always stock his land in the full proportion that it will carry. Plenty

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health and ease we repeat are always favourable to the fleece, but hunger, illness and excessive fatigue are calculated to destroy it. Surely from all the varieties of sheep, which exist in the island, a breed might be, procured adapted to the circumstances of every farm. The grazier who possesses one suited to his own land should prize it very highly, and be careful lest he increase the weight of his fleece more rapidly than he improve the quality of the pasture.

Frequently we find wool which has been evidently produced without a sufficient supply of those nutricious juices, which render the pile close, pliable and soft; and the mixture sometimes used as a remedy for this defect, and which on some accounts is a very excellent substitute, produces effects upon the staple which render it less fit for the process of manufacture. The oil which the mixture contains is most certainly useful, but the tar, a dirty and tenacious substance, adheres to the wool so closely as frequently to corrode the hair, rendering the part to which it was immediately applied thin, rough and weak. When affected by the filthy custom of smearing, the pile is less capable of acquiring the softer and more delicate tints, which it is so often desirable to communicate to the different articles of the woollen manufacture. A portion of that dirt, which it obstinately retains through every previous process, is dissolved amongst the ingredients of the dying vat, and disqualifies them for communicating that vivid lustre, which they would have afforded to a purer wool, even though the artist supply his pans with a much larger proportion of the colouring materials. In the subsequent processes of the manufacture, this filthy staple produces much greater inconvenience, and is subject to more considerable waste than the

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purer pile, even though we make every reasonable allowance for the weight of dirt which it obviously contains; in the jenny and the loom, the machines employed in spinning and weaving it, more dexterity and patience are required of the work-people, and the cloth which it produces is inferior in its quality, and smaller in quantity, than might have been obtained from the same pile in a pure state. These objections to tar, when it is applied to wool as a substitute for the yolk of the sheep, are collected chiefly from the clothier's account of it, and appear abundantly sufficient to prompt him to require a less pernicious mixture. The only circumstance which can be mentioned as a counterbalance to these objections is the consistency which it gives to oil or other greasy substances, with which it is mingled, whereby they are retained among the pile, although exposed to the heat of the animal and the detersive influence of the rain. But if it be desirable in all substitutes of this kind to imitate as nearly as possible the combinations of nature, we should apply to the growing pile a thick coating of soap in all cases where the sheep is incapable from the peculiarity of its constitution of yielding a sufficient quantity of yolk to secure a valuable fleece. To this the shepherd will most reasonably object the heavy expence to which such an application of an highly taxed article, if not entitled to the legal drawback, would subject him, and the great readiness with which it would separate from the fleece when moistened by the showers or the dew. It might be asked are there no means of furnishing the fleece with the power of retaining the soap, notwithstanding the moisture to which it is exposed? But having pointed out the pernicous effects of tar, the wool-grower

wool-grower who is much better acquainted with the peculiarities of sheep will find a remedy. It might perhaps be attended with some advantages if the graziers in the southern parts of the island, especially those whose flocks do not readily yield a copious supply of healthy yolk, or are exposed to the influence of a chalky soil, would imitate their brethren in the north, and furnish the sheep with an artificial pabulum of wool.

Some who have had the best opportunities of observing the nature of sheep and the growth of wool, have doubted if the age of the animal affects the fleece; and those who have but few of observing the growing pile are very liable to mistake, when they attribute effects noticed in the fleece to causes which are supposed to have existed in the animal. Yet there are few persons conversant with long wool who do not consider the age of sheep, and especially that of ewes, as one circumstance tending to reduce the value of the staple. The hog wool, or the first fleece produced by a lamb more than a year old, was greatly esteemed under the old modes of manufacture; and had not the machinery recently adopted rendered it desirable to obtain staples of a uniform length, which is not so easily effected in this class of fleeces as in those obtained from wether sheep, it would still maintain its pre-eminence, as it does in all places where the yarn is spun by the hand. It works better than that of older sheep, being more plastic, soft and fine. If the opinion of staplers be correct, the sheep in extreme old age appears to lose the faculty of producing a valuable wool; for there certainly is a kind of fleece, supposed to be yielded by old ewes, which possesses but few good qualities. In such coats

coats the hair is hard and glittering, was evidently produced in scanty yolk, the staples separate easily from each other, and the wool dies in the bowl. This technical phrase is but ill expressed in common language, if we say that the staples easily sink in a mixture of hot water and dissolved soap, and that they contract a shaggy and shrivelled appearance. Such wool notwithstanding the utmost care will exhibit symptoms of bad workmanship, even in the first stage of the manufacture, and the labour necessary to fit it for the spinning wheel costs fifty per cent. more than is paid for wool of better quality. The improvement of long wool therefore should commence with the banishment of all such fleeces from the flocks. If their bad qualities be really concomitants of age, the remedy is discovered and at hand. Even in the shorter kind of fleeces the effects of age are sometimes observable, but they are not attended with the same degree of inconvenience in the manufacture of woollens as in that of worsteds; they are seen without regret, and sometimes even pass through the hands of the stapler without being noticed.

While speaking of cultivated wool it would be proper to mention the diseases to which it is liable, were they not in general closely connected with the unhealthy state of the animal. A sickly sheep always yields an inferior fleece, and the shepherd who is fortunate enough to restore it to a healthy condition, produces a correspondent effect upon the pile. The scab, though very pernicious to the staple of long wool, can scarcely be considered as a disorder of the fleece so much as an inconvenience; and the winter stain, a greenish hue which the wool sometimes assumes, is most commonly communicated to the

the fleece of a sheep very low in flesh, pinched by hunger, and chilled by the bitter winds of winter. The tendency of the coat to felt upon the back of the sheep is a very curious property of wool, and deserves more minute attention than it has yet received. It appears in some cases to be the effect of blood, is almost entirely confined to the larger sort of fleeces, and seldom affects them until the pile be about half grown. With the cause of cotting in the pile I am utterly unacquainted, and should be happy to receive information.

The circumstances which have contributed to the culture of wool arrange themselves in two distinct classes, and we have mentioned the most important of both; those whose influence is directed immediately to the fleece, and those which are calculated to rouse the attention of its proprietor. From the first, when not connected with the latter, we can expect only partial and unimportant alterations; but when the shepherd, desirous to ascertain how far he can improve both his sheep and their fleeces, seizes upon the indescribable powers of generative nature, always acting by constant laws, and converts even these to his purpose, it is impossible to assign the limits that shall restrict his progress. The British shepherd has every encouragement to tread with confidence the field opening before him, for there never was a period from the day of Cæsar (who introduced the manufacture) until now, when so many enlivening circumstances conspired to prompt and to direct him. The application of machinery in its most perfect form to the woollen manufacture, the increase of wealth both in this country and abroad, the general adoption of fine cloth as an article of dress,

of the coarser fabrics for numberless purposes almost new, the amazing extention of the foreign trade, the increasing spirit of speculation among the British merchants, the growing skill of the manufacturer, the diffusion of natural science and experimental taste through the ranks of our superior graziers, combine to promote his success, and assure us that improvement must shortly be made in the fleeces of our country, which will surprise by their magnitude and gratify by the rapidity of their succession. Britain, although not the first in attempting to improve a native stock of sheep by the selection of foreign breeds, now pushes the intermixture of blood with a spirit, which promises to distance even those, who started long before her in the competion for perfection. The exertions of foreigners, instead of allaying her ardour, should stimulate to redoubled industry ; should provoke the old English pride, and render her shepherds as ambitious of distinction for the beauty of the fleece, as the manufacturer is for the superiority of workmanship.

SECTION III.

ON THE

Essential Qualities of Wool.

WHILE speaking in the course of the last Section upon cultivated wool, and the means by which it has been improved, it was not possible to avoid alluding to those qualities, which particularly adapt it to the purposes of manufactures; but it seemed best to reserve the fuller description of them, in order that the objects more particularly worthy of the wool-growers attention might appear together under one distinct division of the general subject.

If the improvement of wool consist entirely in rendering it better adapted to manufactures, the growers very naturally ask; what are those properties which the workmen deem most valuable? What should be our definite and particular object when we attempt to cultivate the fleece? Not possessing information upon this subject, we are liable, they say, to great mistakes, and our wool may derive its worst qualities from the very measures which we thought best adapted to promote improvement. Too often our knowledge upon subjects of this nature has been collected only from obscure hints, casually

dropped by the buyers; some of whom we have suspected of being interested in deceiving us, and in a few instances have illiberally charged them with combining to defraud. In general these gentlemen, who we are sure must possess the most accurate knowledge both of wool and of the manufacture, communicate information very sparingly, and seem afraid lest we, who alone possess the power of changing the qualities of the pile, should understand too much of its properties and its application. They often tell us that its value has decreased, because the demand for it is lessened; and yet we find no surplus of wool. We are assured that the articles into which our wool was wrought, have ceased to be made, and yet they appear desirious to purchase it; and when we have cultivated the qualities, which they once extolled, we almost invariably hear them reprobated as the most pernicious alterations. This inconsistancy is too obvious to escape our notice, and the wool buyer must pardon us if we trace it to his caprice, or a design to mislead us.

Such are the complaints which the grazier utters almost every returning summer, such the charges which he seriously urges against the stapler. Many of them are totally void of foundation, and originate only in the want of better information, or in that suspicion in one party, which is always the offspring of ambiguous conduct in the other. Yet wherefore should ambiguity and suspicion subsist? Is it because the occupations of the wool-grower and the stapler are incompatible with manly behaviour and generous principles? Or because long established prejudice has induced a habit of transacting business equally dishonourable to both parties? The author of these

pages

pages will deem himself happy, if by attempting to convey to the wool-grower some general information respecting the qualities of wool, he shall be able to quiet some of those bickerings, which have long disgraced the transactions of the buyers and the sellers of an article constantly used. In describing them, he will prefer perspicuity to the ornaments of stile, and observe that order alone in which they occur to recollection.

That wool is evidently most distinguished for good qualities, which may be fabricated into a valuable article, by means of the implements in common use, in the most perfect manner, and with the smallest degree of labour and expence. It would be idle to enquire what would become the valuable qualities of the pile, if a change occurred in the taste of those who ultimately consume woollen goods, if those now in demand were to be no longer made, or if the implements of the manufacture were more perfectly constructed. The present state of the manufacture, of the implements and the demand, must limit our enquiries.

When the fleeces are separated from the back of the sheep, they are invariably found to contain a variety of different kinds of wool, very frequently suitable to the fabrication of articles very dissimilar in their nature, and adapted to processes in the manufacture of a description totally different from each other. The chief business of the stapler is to separate the portions of this mingled mass, to distribute them in their proper order, and to supply the manufacturers with the peculiar kind of wool required by the goods which each of them makes. This employment is very different from that which occupied the

stapler's attention in the thirteenth and two following centuries, when he was engaged only in exporting to a foreign market the fleeces of his country, almost if not entirely without assortment. At present, his occupation constitutes him the agent of the manufacturer, or rather in his hands, wool passes through the first stage of the process adopted to render it useful; and it becomes his business and his interest to watch the state of trade, to notice the changes in the demand for different articles, to remark the nature and the qualities of wool, and to point out to the grower the properties of the fleece, which are successively of superior or of smaller importance. The art of sorting wool, almost unknown a few centuries ago, has been very considerably improved during the last hundred years; and as the division of labour in most other branches of manufacture contributed to their advancement, so in the fabrication of woollens it has produced very essential benefits. But some who are employed in sorting wool, situated far remote from the manufacturers and hearing none of their complaints, either have no precise object in view, or perform their work so ill as to render it necessary to incur a second expence for workmanship, or their sorts must pass into the market debased below their real value. Persons to whom this remark applies should always recollect, that in every intermixture of coarse and fine wool it is impossible to prevent the first from forming the exterior of the thread and the surface of the piece, so that in all ill-performed sorting only the worst portion of the wool becomes visible when passing through the manufacturers hand. This employment which Dr. Parry, who engaged a person to break some wool after the Spanish manner, complains of, requires

quires much greater dexterity than is readily conceived by those who have only seen it performed. Had a common workman merely torn the fleece across the loins, taken off the skirts, and divided the remainder into three parts, almost without discrimination, we also should have called it "a lazy and artless operation;" and had we been charged the price for the workmanship which the doctor paid, we should have expressed ourselves in terms, which we are always sorry to utter and never wish to repeat.

This is the mode of sorting wool adopted in Spain; but the English workman finds it contribute to his interest to be more scrupulous in the separation of the pile, and has introduced a much greater number of sections into his method of breaking the fleece. In this country there are three general kind of fleeces, and each of them is sorted in a manner different from the others. The finest includes all those adapted to the fabrication of woollen articles, and comprehends by far the larger proportion of the wool of the island; the second comprehends the longer pile, that which is suitable to worsted goods; and the other is confined to wool of a medium length, that which is used in the hose trade. The number of sorts, into which the fleeces of each class are divided, is always arbitrary; but custom has introduced an imperfect kind of system to which most staplers conform. The number of sections adopted in the hose trade is generally about six or seven, and the names applied to them are only two, Drawing and Matching, but distinguished in the inferior divisions by the epithets common, fine, blue, brown and super. The fleeces suitable to worsted goods, when considered

considered upon a scale comprehending most of that kind of wool produced in the kingdom, admit of about sixteen sorts, half of them obtained from the wool of sheep which have been shorn more than once, and the others from Hog fleeces. Those who break the shorter wools, sometimes make about seventeen different divisions in a pile of fleeces, and very few staplers, even those who purchase the inferior parcels of this description, reckon fewer than nine sorts; but manufacturers sometimes content themselves with three or four distinctions. The names which in the east of the kingdom are commonly applied to the sorts broken out of small fleeces, furnish a curious illustration of the increasing fineness of the pile since the art of sorting was first made a distinct occupation, and likewise of the growing skill of the workman, who has almost constantly endeavoured to discriminate the size of the hair with greater exactness. The name of the lowest sort, or

No. 1. *Is Short-Coarse;* and very descriptive of its character.

2. *Livery.* } Old sorts into which the fleece was
3. *Abb.* } formerly divided.

4. *Second.* Probably a second or better abb, and the first alteration in the mode of sorting, which arose either from the improvement of fleeces, or in the art of breaking them. This and all the subsequent names seem to have been in their regular succession at the top of the list.

5. *Downrights.* Perhaps intended to convey the idea of superlative perfection.

6. *Head.* Or chief.

7. *Super-Head.* An advance upon the preceding sort.

8. *Picked*

8. *Picked-Lock.* First made perhaps in small quantities.

9. *Choice-Lock.* Still more excellent.

10. *Prime-Lock.* The last sort introduced into the list, and in one instance called *Pic-Nic*; alluding to the celebrated society of that name.

The names of the others are derived from these; and the sorts which they represent are introduced into those parts of the scale where the divisions of it were sufficiently wide to admit them. They are described as a Better Livery, Small Abb, Best Second, and by other epithets of the same kind. This catalogue of sorts rises according to the hair or fineness of the pile, and is calculated to receive that portion of the fleece which is adapted to cloths of the lighter colours; and in order to receive what is suitable only to the stronger tints, we run parallel to it a list of sorts usually denominated Greys, of the first, second, and third order. The French manufacturers, who are sometimes very exact in their mode of sorting, particularly for the more delicate branches of the manufactures, have been recommended by M. D'Aubenton to make use of a micrometer, in order to ascertain the size of the hair with more perfect nicety. The pile of my own sorts, when examined by means of a lens applied to a graduated scale, generally arranges itself within the following dimensions. The Breech or Short coarse, receives all the short and very inferior locks, and the Livery, those of a finer kind; but with a considerable latitude of hair. The diameter of the pile in all the others will be represented if we divide an inch, which we consider as unity, by the number annexed to each of the names.

Better

Better-Livery	by six hundred.
Fine-Grey	— seven hundred and twenty.
Seconds	— eight hundred.
Downrights	— nine hundred and twenty.
Head	— one thousand.
Super	— eleven hundred and sixty.
Picked-Lock	— twelve hundred and eighty.
Choice	— fourteen hundred.

A sample of moderately fine Spanish wool reached sixteen hundred.

These numbers are the average of several repeated measurements, and are considered by me as the standard of the sorts to whose names they are affixed.

It is the object of the woolstapler, when he purchases fleeces, to obtain at a given price as large a proportion as possible of the superior sorts. With him the fineness of the pile is the first consideration, and the manufacturers his customers can always work up wool of the first quality, if they could obtain it at a price which would allow them to meet the market. The thinness of the hair can very seldom if ever be considered as a detriment to the fleece, but coarseness very frequently unfits it for a variety of purposes. In his search for wool of a superior quality, the stapler is perpetually urged by the increasing demand for goods of the most delicate texture; and it should induce the grower to collect from his flocks fleeces distinguished by their superior excellency. The consumption of Spanish wool amongst us strongly evinces that when a taste for fine cloths prevails, the materials will be obtained by the manufacturer, even though the use of them tend to discourage our own wool-growers, and to supersede the necessity of our native produce. Nor is there

any

any danger to be apprehended, lest the cultivation of fine wool should leave our coarser fabrics without the supply which they require, for the richer soils of the kingdom will continue to be stocked with a race of sheep, whose pile will not for many ages be adapted to delicate manufactures; and in proportion as farms improve in the low lands of Scotland, and almost through every district in Ireland, we may expect that the fleeces they yield will be better adapted to those purposes for which the middle wools of England are at present employed. But should it be necessary to import the coarser article, it would be much more advantageous to purchase of foreigners what is easy to be procured from many countries, than to depend upon one haughty nation, subjugated to the councils of our rivals.

In the present state of the woollen manufacture, the length of the staple is an object of very considerable importance. It is that which destines the fleece to fabrics very different in their nature, and produced by instruments of dissimilar construction. It will be difficult to convey to those who are not acquainted with the structure of the card and the comb, an idea of the mode in which they are managed, and the purposes for which they are used, sufficiently accurate to enable them to conceive the object of the manufacturer, or the qualities of the wool suited to their respective operations. The card is a small oblong board, furnished with a great number of short crooked wires or hooked teeth, upon which the wool to be wrought is hung by drawing it over them in a direction contrary to that in which the hooks are bended. When full the instrument is placed upon the thigh of the workman with the teeth upwards, and held there

there by the left hand, assisted by a handle attached to the card, while another card of similar construction, having the teeth downwards, and in a direction opposite to those of the first, is drawn over it with the right hand. The operation is continued until the workman thinks the wool completely torn between the teeth, broken and blended; when by a particular mode of taking it from these instruments, he renders it fit for the spinning wheel. The object here is to break the wool completely, to blend it most intimately, and to form it into a thin roll, or "rovelling," of the slightest texture imaginable, held together only by the natural hookedness of the pile, or that disposition which it has to assume a zig zag, or waved form. Hence it is evident that the two chief qualities, which carding wool requires, is shortness of pile, and a disposition in the hair to assume a crumpled or spring-like shape. If the first of these be ill adapted, labour becomes necessary to reduce the immoderate length of the staple; a greater expence is incurred, and more time is employed in working it; considerations which always have their weight among clothiers, and ought not to be disregarded by the grazier. It appears scarcely possible that the staple of clothing wool, at least that part of it employed in the manufacture of the finer fabrics, should be too short if it possess only that degree of crumpledness, which will enable it to form a roveling. One great advantage of the modern machinery arises from the more complete and uniform manner in which the staple is broken; and the chief point of attention in the scribler is to break it no farther than the hookedness of the pile will admit of.

This peculiar shriveling quality in wool cannot prevail

prevail in too high a degree, if it be destined to make any kind of goods which require a close and smooth surface; for the greater number of the minute curves which it contains in a given length of the pile, so much the more it may be broken without injury, and every portion retain a sufficient degree of curvature to link itself with its neighbours, forming an inconceivably thin and transparent texture. The thinner this texture can be produced, and the greater degree of surface that can be given to it, so much the longer thread will it yield, and the cloth made from it partake of a proportionable degree of delicacy. The necessity of this singular property of clothing wool is obvious from the manner in which hair, a straight and smooth pile, is dissipated when wrought upon the same engines; the particles possessing no means of uniting themselves together drop singly from the machine, produce no rovelling, and cannot be spun in the same manner as a woollen thread. When the pile is intended to form some of those fabrics distinguished by a long and even knap, such as blankets and cloths intended for large surtouts, too great a proportion of this shriveling quality might be detrimental, by rendering the knap less uniform and compact. But in the surfaces, which remain loose and carefully disarranged, if I may be allowed the expression, as in the instances of cloths for light great coats, frizes and swan-downs, it is highly useful; and this variety among other circumstances plainly suggests how desirable it is that wool should be produced for a definite purpose, and not as it generally is at random, and possessing properties of which the grower is either entirely ignorant, or observing them knows not their value nor their use.

Yet the cultivator of wool must not suppose that every kind of curvature, which he observes in the fleeces of his sheep, is a sypmtom of aptness in the broken pile to link together, and form a rovelling, the first rudiment of the thread; for there is a sort of crumpledness in the staple, which the clothier avoids with almost as much care as he employs in seeking for the other kind. It is distinguished by a singular adaptation of the curves in the pile to each other, as though they had been formed by some external pressure upon the staple, and not by a cause affecting every individual hair separately as it passed through the pores of the skin. The distribution of the hair in staples of this description bears some resemblance to that of the grain in a very crooked piece of timber, or perhaps it is more exactly like waved bars of metal formed in such a manner, that the convex part of one fits into the concavity of another. We can assign no reason why this kind of wool should be disapproved, unless it arise from the superior length of the curves, by which means the staple cannot be broken so much as it ought to be, and every portion still retain its power of uniting with those which are near to it; this peculiarity however is known to be detrimental, and ought to be avoided. In some of the finer kinds of wool possessing this shriveling property in a high degree, the chord subtending the arc, is sometimes not longer than the hundredth part of an inch; but in those of inferior quality, where the curvature is not of the most valuable kind, the chord, or distance between one extreme point of the curve and the other, will measure the sixteenth and sometimes even the eighth part of an inch. This great difference in the arcs is easily discernable

TABLE, No. II.

SHEWING THE QUALITY OF ENGLISH WOOL, ARRANGED IN CLASSES ACCORDING TO THE FINENESS OF ITS PILE.

CLASS—No. I.	*Packs.*
York, West-Riding	6678
—— East Do.	6380
—— North Do.	5939
Westmoreland.	3262
Cumberland,	5915
Lincoln,	2833
	31007

No. III.	
Essex,	6486
Surrey,	3540
Wilts,	8144
Dorset,	9880
Somerset,	9388
*Gloucester,	5400
Monmouth,	1431
Worcester,	4820
Shropshire,	4397
	53486

No. IV.	
Norfolk,	5697
Suffolk,	5176
*Sussex,	9477
Hereford,	4200
	24550

No. II.	*Packs.*
Cambridge,	1128
Hunts,	2000
Beds,	4250
Kent,	7000
Hants,	7257
Devon,	7280
Cornwall,	3382
Berkshire,	4151
Oxford,	5303
Bucks,	2787
Harts,	5297
Middlesex,	750
Stafford,	1526
Warwick,	2287
Leicester,	291
Nottingham,	4112
*Derby,	4530
Chester,	926
*Lancaster,	4522
*Durham,	3320
*Northumberland,	12333
North Wales,	5692
South Do.	3570
	93694

THE AVERAGE QUALITY,

Of short wool is 1 Inch divided by 871, value 15*l.*
Of short fleeces, 885,
Of long wool, 600, value 13*l.*

TOTAL VALUE OF ENGLISH WOOL.

245,290	Packs of short Wool at	£15	£3,679,350
137,228	Do. long Do.	13	1,783,964
10,718	Do. lamb's Do.	10	107,180
393,236	Packs.	Total	£5,570,494

The Slaughter of short-wooled sheep is	4,221,748 per ann.
Carrion of Do.	211,087
Slaughter of long-wooled Sheep,	1,180,413
Carrion of Do,	59,020
Slaughter of Lambs	1,400,560
Carrion of Do.	70,028
	7,142,856

The number of Lambs yeaned per ann. is	7,002,802
Annual decrease,	140,054
	7,142,856

(To face p. 148.)

discernable by every untaught eye, and most especially deserves the notice of the grower. He will find specimens of the inferior kind most frequent in fleeces which have been shorn from a sheep, the produce of very dissimilar progenitors.

No means have yet been discovered of communicating this peculiarly valuable and nameless property to wool, in which it does not naturally subsist. We depend therefore upon the breeder alone to procure it, and are solicitous that in the various combinations of blood, which he is continually forming in his flock, that he should not loose sight of one of the distinguishing characteristics of wool, and that he should promote this as well as every other valuable quality with the utmost care. In a country where the carcase of the sheep is more valuable than its pile, and where the cultivation of wool is at most only the secondary object of the farmer's care, it is desirable to render the blood as perfect as possible, in order that we may obtain from it without labour even the minute excellencies of wool. But in Bucharia, where the shepherd is more solicitous about the fleece than the health or even the life of his sheep, artificial means are used to produce something like this shrivelling property, deemed so valuable in these western regions. There the lamb so soon as it is yeaned, is wrapped in linen bandages, is exposed to the sun and has water poured upon it every day. As it increases in size, the fillets are gradually loosened, yet so as to preserve at all times a considerable pressure upon the wool. By these means the pile is compressed to the skin, and assumes a waved or damasked appearance, which is esteemed its supreme excellency. If it could be supposed that this compressure

of the fleece produces that kind of crumpledness, which is considered as an excellent quality in English wool, the process would be too expensive and troublesome for our shepherds, and the superior price for which such wool could be sold not adequate to reimburse them. But it is most probable that we should find, if we had oportunities of examining the Bucharian fleece, that it was not at all more adapted to the woollen manufacture than it would have been, had no such pains been taken with it.

Most of the wool produced at present in these kingdoms is too long for the perfect operation of the card, and the first process through which it passes after it has left the hands of the stapler is calculated to shorten it. This is the precise object of the structure and the use of the first engines, to which the pile is submitted. But the grower has a much more ready and less expensive remedy in his power; for he can easily cultivate a race of sheep whose coat shall be sufficiently short for the nicest purpose, or he can shear it more frequently than once a year, even before it has attained half its length. Yet he should be very careful how he adopts a measure of this kind, for he will observe that the wool of the second clipping of one season will not be exactly like that which he procured at the other. Although somewhat inferior in quality, in the hand of an expert manufacturer it may be applied to excellent purposes. If inclined to try the experiment, which is by no means a new one, the shepherd will naturally consider whether the state of his flock, the nature of the season, and the climature of his farm will admit of it.

The wool intended for the manufacture of worsted goods of any description, is first reduced to a proper

state

state for spinning by means of the comb, an instrument very different from the card, both in its structure and operation. It consists chiefly of a piece of wood shaped very much like the letter T. Through the head or transverse part of it, which is generally about three inches broad, a number of very long sharp teeth are thrust. They are finely tapered, made of well tempered steel, and generally arranged in three rows about thirty in each, and placed nearly at right angles to every part of the wood. The handle of the comb is represented by the perpendicular part of the letter. In using this instrument, the wool is carefully hung upon the teeth in such a manner as to project over the front of the head; when sufficiently filled and firmly fixed, another comb of the same kind is drawn through the wool so as to unravel and lay each hair of it smooth and even. If we consider the full comb as the human head disgraced by a quantity of neglected, long and dishevelled hair, which we reduce to its natural and elegant order, we shall have a very just idea of the operation and the use of this instrument in the worsted manufacture. The very name shows its origine, application and use.

But the comb is used for another purpose than merely to lay the pile straight and even; for the staple of long wool commonly contains a considerable number of hairs shorter than the generality of those which compose the fleece, and also a number of long ones which are tied in natural and indissoluble knots, highly prejudical when wrought into the worsted threads. These are collected by the process of combing betwixt the teeth of the instrument, and by a very curious and dexterous mode adopted to strip the comb of its longer pile, the workman

leaves them there until he has disposed of the long clear and valuable wool extracted by his fingers, and which from an old English word most aptly denoting the shape he has given to it, is denominated a sliver. When the instrument is cleared from the knots or noil, it is ready to repeat the operation. The comb therefore evidently requires that the wool, to which it is applied, possess sufficient length to permit its arrangement upon the teeth, strength or toughness enough to endure without being broken the muscular force necessary to draw the instrument through it, and such a degree of curvedness as will enable it to form a close and compact sliver.

Even to this day the comb is almost in its simple state, very few alterations have been made either in its structure or dimensions from the time when it was brought into Europe ; and perhaps this is the principal reason why we find so little difference in the hair of long fleeces with respect to its fineness. By far the greater proportion of this kind of wool produced in England, when the pile is accurately measured, varies only about the two hundredth part of an inch. The diameter of the hair is seldom larger than the space denoted by an unit when the inch is divided by six hundred; it is commonly not finer than that measure divided by eight hundred ; a very small quantity selected from fleeces of a shorter description, and submitted to the operation of the comb, will reach a thousand. To manufacture fine wool by means of this instrument, its structure must be less coarse, the teeth finer, shorter and placed more nearly together ; the "load" applied to them considerably smaller, and should be wrought by a less nervous arm. But the manufacturers of worsted yarn are the best qualified to decide upon conjectures

jectures of this nature, and I presume not to trespass upon their peculiar province, being satisfied with expressing an idea worthy of attention and calculated I hope to excite it. In general if there be a demand for yarn of a finer quality than is commonly produced, and for goods of a superior texture, manufacturers, unless chargeable with a culpable want of commercial spirit, are always ready to seek, and determined if possible to obtain the one and to fabricate the other. When this laudable zeal is excited and encouraged, the raw materials necessary to the perfection of the articles in demand are speedily either procured from abroad, or produced at home, and instruments adapted to the completion of the fabrics are improved or invented.

Yet it seems to be peculiarly difficult to apply the powers of mechanism to the manufacture of the finer sorts of worsted yarn, for although long since employed in the fabrication of almost every article of woollen goods, and even adopted with considerable success in spinning the coarser numbers of worsteds, yet the comb and the Catherine wheel are the only instruments to this day employed to furnish the more attenuated threads. Perhaps the very nice adjustment of the comber's muscles when he draws the sliver, and the adaptation of the spinner's motion to the length and the tenuity of the pile, when she extends her thread, require a dexterity, the result of habit rather than of judgment, which is not compatible with the unvaried action of an unintelligent machine.

It is necessary that the combing wools of our country possess some degree of curvature, or disposition to contract the length of the pile, for without it the

the workman could not form his sliver; but it is not desirable that this property should greatly prevail. The reason why long wool should differ so essentially from the pile of shorter fleeces will be easily understood, if we attend to the operation of the spinning wheel. In twisting a woollen thread, where the staple has been previously broken and the fragments of it, in the utmost disorder, are united only by their natural hookedness, the turning of the wheel rolls them together without arrangement, and when placed in every possible direction. But in spinning a worsted thread, where every hair has been previously disposed by the side of others in the most regular order, the pile is drawn out in the direction of its length, every single hair being parallel to all those which lie near it, and is twisted in a spiral form, something like the threads of a compound screw. If those hairs contracted their length in any considerable degree, they could not be correctly arranged nor drawn out in that regular order, which the work requires, but would be twisted into the thread in an irregular and crumpled form; a circumstance injurious to the yarn, and to the goods which are made from it.

This general account of the different processes through which wool passes in the first stages of the manufacture, I trust, will be intelligible to every one, and sufficient to convince the grower that the good qualities of the fleece are not of a capricious kind; that wool cannot be employed arbitrarily to any purpose which the manufacturer may choose, but that nature points out its peculiar destination; that the workman is obliged to take the raw material with all its defects, and apply it to uses for which it is best adapted

adapted, although he observe in it qualities which injure his fabrics, and lament that it is not possible for his utmost skill and industry to counteract their effects. Thus situated, he looks anxiously to the grower for assistance, as to the only person who can change the properties of the fleece, and produce a perfect staple, most reasonably supposing that his wants should be attended to and his wishes gratified. Perhaps the independent spirit of the manufacturer might be mortified, if we hinted that he is the workman of the shepherd, or we could ask the farmer if he be not extremely solicitous to sow good seed, in order that he may furnish the miller and the mealman with a prime article, while he is reproachfully careless of the quality of that commodity, with which he supplies the comber, the spinner and the weaver.

The length of pile suited to the comb is upwards of four inches. The hose trade requires a considerable share of that which measures from four inches to eight, and the longer kind is usually destined to the fabrication of worsted yarn; an article which admits of very great variety in the mode of its manufacture. The shorter staple is applicable to woollen goods of almost every description, which beside the whole quantity of this sort of fleeces produced at home, require very large importations from abroad; and no inconsiderable quantity of that pile which has been grown to the length of combing wool is submitted to the operation of the card. 'Tis chiefly that however which possesses the contracting property in too great a degree; which is too weak for the comb, or is used to produce articles requiring a long and well-raised knap.

Graziers

Graziers are able to increase the length of staple by various means. Most of them having been mentioned already, it will be sufficient here barely to repeat them. The management of the breed is not only the most natural and easy method, but that also which is most usually adopted. Its effects are more permanent than others, which are sometimes resorted to, but less pure from delcterious influence; for it is not unfrequently observed that the ram communicating to his offspring an increased length of staple, gives to it also a coarser pile. Feeding the sheep upon the richer grasses, upon turnips and oil cake, thus forcing both the carcase and the fleece, seems to be a method of increasing the length of wool free from contaminating influence, but requires the animal to be constantly supported, even to the point of luxurious feeding; and the effects of the system remain no longer than it is continued. Another method of increasing the length of the staple pointed out by nature, but seldom, perhaps never adopted with this particular design, is to keep the wool upon the back of the sheep through two whole years; it requires only care that the animal be not injured by cold or by hunger, during the period that the fleece is growing.

Judging from my own limited acquaintance with the state of the worsted manufacture, it appears desirable that wool-growers should furnish a larger quantity both of those coarse and heavy fleeces which are adapted to the manufacture of the inferior articles; and also of that superfine staple, which is applicable to Crape, Bombazine, Shawls, and some of the other delicate textures of the Norwich loom. It is greatly to be wished that the delicacy of these fabrics could be carried to a higher degree of perfection,

fection, and that every effort should be made for the adaptation of the modern machinery to yarn of a superior quality. If this could be effected, it would contribute more perhaps than any other circumstance to the revival of our worsted manufactures; would enable them to rival some of the costly fabrics of India; and more successfully to resist the overbearing influence of cotton goods. We do not wish to recommend measures calculated to diminish the manufacture of even this foreign material, or to impede its progress, but cannot without regret observe that it prevails to the absolute destruction of a taste for worsted fabrics.

The pliability of wool is another of those qualities in the staple, which deserve the closest attention of the shepherd, being esteemed by the manufacturer an essential property. All inflexible and brittle substances are evidently unfit for many of the operations, through which wool must pass before it can be brought to that finished state of manufacture, which is intimately connected with the comfort and the elegance of life. It is impossible to produce from them a long extended thread, whose tenuity and compactness shall fit it for the action of the loom, the fulling mill and the press. Indeed for many articles of the woollen manufacture the pile cannot possess too much pliability, if it does not loose that tendency to contract its length and assume a crumpled form, which we have already described as one of the best qualities of the shorter staples. In the finer specimens of the Spanish wool, these two properties are admirably adjusted, the curvature of the pile is most delicate and true, its plastic quality is extolled to almost proverbial triteness; but the staple of most British fleeces

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is complained of as stubborn and elastic, counteracting the effects, which the spinning wheel should produce, and rendering the thread loose and bristly. Yet it must be recollected that woollen articles require a great variety in the degrees of elasticity, possessed by the wool from which they are made. Those designed to withstand the extreme rigours of the winter season, such as blankets and fearnoughts, as well as shags and some sorts of carpeting, require a very large proportion of it, such as will enable the workman to form a long and swelling knap; but in the finer and thinner fabrics, whose surface is intended to be highly polished, a great degree of elasticity is very injurious. It always causes these substances to feel hard and prickly, because the ends of the hair starting from the body of the thread, and projecting from the surface of the cloth, affect the sense of feeling exactly like an immense number of short acute points fixed there. In finishing goods of almost every description, both of woollens and worsteds, excepting those already mentioned, the reduction of this extreme elasticity is one object among others of the workman's care. For this purpose he employs the shears, the singing stoves and the press with its heated plates, and is able by these aids united with great industry to form a furface smooth, soft and glossy; but the effect he produces upon strongly elastic wool is little more than temporary, since moisture restores its former stubbornness, and deprives it of that gloss which had been impressed upon it. The effect of heat upon wool is very singular, for when applied in a moderately high degree, it seems to furnish the pile with the power of expanding itself, as though it excited a mutual repulsion betwixt the hairs

hairs of which the staple is composed, and is often made use of in the processes of the woollen and worsted manufactures with great advantage, and when united with pressure it serves to fix the pile in the artificial direction which is given to it; an effect familiarly illustrated by the curling irons of the friseur. The adjustment of this neglected property may be recommended to the wool-grower's attention with great propriety, because if we may judge from some of the fleeces produced by the most celebrated breeds, it is as much connected with the blood of the animal as any other quality which can be communicated from the parents to the offspring, and is a very weighty consideration when we are estimating the perfection of the pile.

The short account before given of the manner in which wool is combed, and of the effect which the card is intended to produce upon it, will convey to those who have not been familiar with these processes, some idea of the value of a proper degree of toughness in the pile. If the staple be weak and easily broken asunder, it will not be able to endure the force which is necessary to drag the comb through it. Breaking to pieces in the operation, the fragments, collect in the instrument and form only a noil, an article of no use in the fabrication of worsteds. The grazier may easily perceive when his combing wool is too weak, for if the staple break when strongly pulled with the fingers of both hands, he may always conclude that it is ill adapted to the manufacture of worsteds, and most commonly rendered totally unfit for it. If he attempt to promote the growth of a superior kind of long wool, it is of the utmost consequence that he notice the strength and soundness of the staple; for

if the fleeces, which he has cultivated with care and whose length of pile he has increased, be not sufficiently strong for the comb, he has not only failed to attain his object, but has greatly injured his wool. Peculiar care is necessary also, when the proprietor of a long-woolled flock attempts to render the pile finer by a selection of rams carrying a smaller fleece, for there are only few breeds in the kingdom, which yield fleeces at once fine and sufficiently strong for the comb. A sensible wool-stapler who has long observed the English fleece, and whose judgment and candour I have heard spoken of among spirited agriculturists with the respect they deserve, writing upon this subject, complains that by the improvement of sheep in the counties of Huntingdon, Northampton, Leicester and Lincoln, the qualities of the staple have been greatly injured, that the wool is rendered too weak for the old established manufactures, and adds "this is an evil that must soon remedy itself for deep strong wool will become the most valuable."

But on the contrary, the carding wools ought not to possess too great a degree of strength or toughness, because the first process through which they pass, is designed to break the pile into small fragments, which is by no means accomplished when the strength of the hair is sufficient to endure the force applied to it with the card, and enables it by passing through the interstices of the teeth to avoid their proper action. Nor should it be supposed that the shorter pile cannot be too tender, for it is sometimes found so decayed as to be broken, when passing through the engine, more minutely than the natural hookedness of the staple will admit of, it is then easily dissipated by the motion of the cylinders

cylinders and wasted; nor will the cloth, unless the wool of which it is made possess some considerable toughness, endure without injury the violent strokes of the fulling mill.

No technical name, I believe, has yet been given to the felting quality of the fleece, although it has been long applied to useful purposes, and is of essential importance in the fabrication of many kinds of woollen goods. It is the basis upon which the hat manufacture depends among ourselves, and has for many ages been applied abroad to the production of pieces of domestic furniture. In the fabrication of worsted goods it is not employed, nor is it necessary in the manufacture of stockings, blankets, baize, flannels, nor any other article not submitted to the action of the fulling mill. In some of them, when made of wool in which it abounds, the housewife finds great inconvenience, and complains that her stockings and her flannels become too small for the wearer. From the different modes of manufacturing these articles, we may conclude that in general the felting quality is a valuable one in almost every description of fine and short stapled fleeces, and that it is not desirable in the greater part of the longer and coarser wools. There are few circumstances, in which the breeds of sheep most commonly met with in these islands, differ more from each other than in their power of yielding a fleece, which possesses fully, or is partially destitute of this valuable property. It may be described as a tendency in the pile, when submitted to moderate heat combined with moisture, to cohere together and form a compact and pliable substance. But this property does not belong exclusively to the pile of the sheep, the hair of other animals, particularly

cularly the camel, the dromedary, the goat and the beaver are known to possess it in a high degree; perhaps few of the shorter furs are entirely destitute of it, although the longer hair, and that which has a polished and hard surface with a great degree of brittleness exhibit only slight symptoms of its existence. I have never yet traced it in the hair of the human head, except in the disordered state of it common in Poland, nor in that which is cut from the necks and tails of horses, nor in the bristles of the hog, although each of them have been observed minutely in the growing, the raw, and manufactured state.

Among the animals whose furs possess this valuable property, the sheep is most distinguished; and if we may draw the conclusion from the quantity of felts used through all parts of the East, and the easy method in which some of them are formed, it seems that the wool of western Asia is not destitute of it; that of France possesses it in a distinguished measure, and the envied produce of Spain surpasses that of neighbouring countries in this as in most other excellencies. From the fleeces of England, those have been selected as the best adapted to the fulling mill, which are obtained from the Norfolk, the Morf and the Cheviot breeds of sheep; while the South-Downs have been generally decried as producing a kind of wool, notwithstanding all that has been said in their favour, notoriously deficient at least of this good quality. Perhaps it may be owing in some measure to the chalkiness of the land upon which these sheep pasture, for we have observed that both these and the Wiltshire breed, when removed to different soils, produce a wool, which thickens in the fulling

fulling mill, although it proceeds more slowly in the operation than the pile of some other families. We must not conclude from this circumstance, that the difference observed in the felting quality of fleeces is entirely owing to the land, because we find upon soils known not to be injurious to wool different kinds of sheep, whose fleeces do not possess this quality in an equal degree. Graziers might easily ascertain to what cause the dissimilarity is owing; and surely when the South-Down breed is diffusing itself so widely over the country, it becomes the breeders of Sussex to wipe off every reproach from their stock.

The felting quality of wool is not evident to the eye; and though there be some very general appearances, which indicate the existence of the property or its absence, yet they are so vague, that the best judges of wool consider this as a point to be ascertained only by trial. The application of moisture, warmth and pressure, is the most usual mode of bringing the quality into action. Without the aid of the first, it remains perfectly dormant; the two latter are employed to quicken the process. The tendency of thread of almost every description to contract its length as it imbibes moisture, has not only been generally known, but some kinds are considered as acting so regularly, and so susceptible even of the slightest alteration in the cause which affects them, as to authorize their application to the most accurate purposes of Natural Philosophy. But the woollen thread possesses the quality of retaining its contraction after the cause which produced it has ceased to operate, while most others, such as lines of catgut, horse hair, linen, hemp and cotton assume their former length. We know too little at present to

enable us to assign the cause of this permanent contraction; but conjecture that it is owing to the particles of the thread, which are brought into actual contact with each other, cohering exactly upon the same principle as the leaden balls do in the common experiment, so often exhibited in lectures upon Natural Philosophy, to illustrate the attractive power of bodies. In this experiment, it is necessary to clear the lead from all foreign substances, at least in the points where the balls touch each other; but in the felting of wool, on the contrary, it is equally necessary to use some fluid, which intimately mingles itself with the pile and promotes the attraction, as oil does when infused for the same purpose between two plates of glass. Moderate warmth evidently assists the process, but why it does so and how it acts, are in a great measure unknown. The degree of heat required to make the felting property act with its utmost force, is considerably below the boiling point of water; a higher temperature loosens the texture of the thread, and increases the elasticity of the hair, thus giving it a disposition to start from the substance of the cloth and spoil its surface. Pressure seems to be useful by bringing a greater number of points into contact, and by divesting the thread of the air which is lodged in its interstices. But so little is known of the proceedings of nature in the operation of felting, that the manufacturer who would institute judicious experiments, superintend them with care, and publish the results, would perform a service useful to his country.

The mode of bringing this latent property into action has not been always the same. In the ruder ages, it seems to have been excited by the pressure obtained

obtained from the weight of the human body; the cloth in its rough state being placed beneath the feet of the workmen, they continued to trample upon it until sufficiently thickened. Hence the person engaged in this employment was called a waulker, or walker, of cloth; and the machine afterwards introduced to answer the same purpose was denominated a waulking mill. Mrs. Guthrie, in her tour through the Taurida, informs us that the Tartars still use the patriarchal mode. Spreading two or three layers of "combed" wool moistened, "they tread it underfoot for a few hours, and form their carpets without the aid of the loom, or the modern invention of cylinders." Yet this learned lady, who during her journey collected a great deal of information, is perhaps mistaken when she describes the wool as being "combed," because this process was first adopted long since the days of the patriarchs, and supposes a knowledge of the arts totally inconsistent with the spirit of her remarks. If the wool be prepared by any instrument, and not by the fingers alone, it is probably done by means of the wild teasel, at least we have reason to suppose so, if that plant is to be found there. The first improvement in the art of fulling cloth, I apprehend, consisted in substituting a sitting posture in the work people for an erect one; thereby enabling them to perform the work more rapidly and with greater ease. Mr. Pennant, the only one that I know of who has given an account of the process in this stage, saw it performed in the isle of Sky, during his voyage to the Hebrides. "On my return from Beinn-shuardal, he says, I am entertained with a rehearsal, I may call it, of the Luagh or walking of cloth; twelve or fourteen women divided into two

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equal numbers, sit down on each side of a long board, ribbed lengthways placing the cloth on it: first, they begin to work it backwards and forwards with their hands, singing at the same time; when they have tired their hands, every female uses her feet for the same purpose, (still sitting) and six or seven pair of naked feet are in the most violent agitation, working one against the other; as by this time they grow very earnest in their labours, the fury of the song rises, at length it arrives to such a pitch, that without breach of charity you would imagine a troop of female demoniacs to have been assembled. The subject of the song on this occasion is sometimes love, sometimes panegyric, and often a rehearsal of the deeds of the ancient heroes, but commonly all the tunes are slow and melancholy." This author gives an expressive plate of the Luaghad, but when he calls it "a substitute for the fulling mill," I apprehend his language is not quite correct.

The fulling mill was probably first brought into England by the Flemings, and does great credit to the age when it was introduced, both by the simplicity of its structure, and the perfection with which it performs the task assigned to it. While many boasted improvements, which have been introduced since that period, are again laid aside, this machine, like a venerable old man, stands amidst modern ones, the long tried faithful servant, the admiration of his juniors, and boasts, that he can perform the appointed task of every day with as much vigour as in his prime. This ancient engine deserves our regard since it was the first combination of mechanical power, applied to the woollen manufacture, and more generally adapted through several centuries

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in every country of civilized Europe than any other machine which can be mentioned. Something though but little has been done to metamorphose its appearance and action, but the alterations which have been made in it, when compared with those observable in other engines, are trifling, I had almost said contemptible. Yet when a second Arkwright shall arise and apply to it his wonderful genius, perhaps in some following age, the fulling mill will assume an appearance as different from that which it exhibits at present, and effect its purpose in a manner as varied, as the modern jenny does from the old spinning wheel, as the carding machine, with its revolving cylinders, and adjusted variation of motion, does from the petty instrument formerly wrought by the hand.

In the last age, the operation of the fulling mill was very laborious and tedious. A piece of cloth was then submitted to it for thirty successive hours, whereas now it is often rendered sufficiently thick in seven or eight; an instance of œconomy in the use of time and labour which augurs well for the interest of the manufacture. This remarkable alteration must be attributed partly to improvement in the mode of spinning, to the superior skill of the workmen both in the loom and at the mill, to the selection of materials possessing the felting property in the strongest degree, to the general taste for thinner cloth, and perhaps to the improvement of the raw material. Yet it must be confessed that the wool-grower has contributed less to the public benefit arising from this source, than most other persons connected with the manufacture. If he be anxious to promote the growth of fleeces, in which the felting quality greatly prevails, I should recommend, from the little knowledge at present possessed,

possessed, that he attend closely to the supply of natural, rich and nutritious yolk, which the pile receives while growing ;—that, where the soil or the climate of his farm will not admit the production of a sufficient quantity, he should seek for a substitute, adopting the best which presents itself; and to excite his attention shall only repeat the expressive language of the clothier, who commonly asserts " that cloth is either made or marred at the mill."

When enumerating the essential qualities of fleeces, we must not forget the softness of the pile; for every person whose knowledge of the manufactured article is derived chiefly from the purchase of a coat or two in the course of a year, attends more particularly to the colour of the cloth, and the effect produced upon the sense of feeling than to any other circumstances. Indeed the softness of the surface, which a piece presents to him, is frequently considered as a test of goodness in the materials from which it is made. The manufacturer therefore, always attentive to the public taste, endeavours to produce by his loom a texture distinguishable for its silky smoothness; a quality which the skilful dresser attempts to heighten by every favourable circumstance he observes either in the piece or the operations of nature. But the utmost skill can be only of little avail where the pile is naturally hard. The pieces which are made from it, are invariably rejected, whether they be presented to a purchaser in the halls, the merchant's warehouse, or the retailer's shop ; while those made from wool of a softer texture find a readier sale and obtain a greater price. The difference of wool with respect to the quality under consideration is really astonishing; some is so hard and hairy, that goods fabricated

ed from it almost prick the hand; an effect always disgusting, and never completely counteracted even in articles where the mode of manufacturing and of finishing them most successfully conceals it. Most persons when speaking of this quality and expressing it by the term already used, connect with it an idea of that effect which silk produces upon the sense of feeling; but there are a few who seem as though they intended to convey by the same term, an idea of that sensation which is the effect of down or cotton upon the touch. The first arises from the peculiar smoothness of the hair, the last from the little resistance which it makes to pressure.

This silky softness, like most other good qualities of the fleece, depends very much upon the breed of the sheep, and the quantity of yolk which they constantly afford. Some districts yield a staple peculiarly smooth and delicate, in which like the celebrated wool of Shetland and Vigo, softness forms the distinguishing characteristic. The Spaniard, than whom few can boast of a softer fleece, is so throughly aware of the value of this property, and the means likely to promote it, that he not only attends with peculiar care to the breed which travels to the mountains, but before shearing encloses the sheep in sudatories, in order to saturate and soften the pile with yolk And even among ourselves the softest pile is collected, if the breed be similar, from flocks which have been kept in good condition, upon loamy soils, and into whose fleeces the shepherd has been careful to admit no particles of absorbent earth. In the course of business, I once met with a small parcel of wool, collected from sheep of Westmoreland, which had been smeared, according to the custom of that country

country, with a mixture of tar and grease in the autumn, driven into Huntingdonshire, and pastured during the winter and vernal months upon the warmer soils of that southern district. In this part of the kingdom tarred wool was quite a novel article, and the impossibility of abstracting all the filth from the upper part of the staple, by the common mode of working it, alarmed the proprietor, who like an honest man, wound the fleece with the leech outwards, a practice neither common in that country, nor adopted by the same farmer in the other part of his parcel, in order that he might more effectually conceal the dirt. These rejected fleeces however, which passed from hand to hand because unfit to be mingled with the common pile of the neighbourhood, were finally sorted in my possession, and contained the softest wool of English growth that I ever examined. Its staple was perfectly free from kemps and wild hair, so common upon the backs of northern sheep, and it was much finer than the wool usually found either in Westmorland or Huntingdonshire; but too long for the card, and too tender for the comb; in other respects it possessed almost every valuable quality. No means presented themselves of ascertaining the precise effect produced by the change of climate, food and treatment, which these sheep had most probably experienced; but the facts just stated, lead us to conjecture that it was very considerable, and extremely beneficial. They induce us to wish that the experiment were repeated with more accurate attention to the flock, especially as the increase of softness in the southern wools is most sincerely to be wished.

Enough has already been said upon the colour of wool

wool to illustrate the advantage of perfect whiteness; but it seems desirable that the appearances in British fleeces inconsistent with this excellency should be more minutely pointed out, in order that the grower may observe and correct them. The yolk often leaves in the pile a deep tint of yellowness, which ought to be avoided if it be possible to prevent it without injury to the staple. A sensible French chemist made some experiments connected with the art of bleaching wool, but did not extend them far enough to attain any very important information, and contented himself with referring to the well-known mode of stoving cloth by the fumes of sulphur; nor has any other person discovered a process applicable to the unwrought staple, by which it may be rendered perfectly colourless. We turn therefore to the only one who can dispose the qualities of wool as he pleases, and solicit attention. In some sorts of wool, which possess valuable qualities in the highest degree, and whose yolk has evidently been copious and rich, we see no unfavourable tints, and are induced to suppose that perfection of colour may be attained without sacrificing any good quality of the staple. Even in wool reputed white we observe some smaller deviations from that clearness which is desirable in all fleeces, and besides the yellowness just mentioned as the effect of the yolk, fleeces very frequently possess from the constitution of the sheep, or the nature of the soil whereon it feeds, a blue, a brown, or a redish tinge. Very commonly grey hairs are mingled with the white ones, so intimately as to escape the notice of the most penetrating eye until the pile be scoured; an operation not always performed before it is made into cloth, when the manufacturer sometimes finds

that it is not fit to be imbued with the more delicate tints, and on that account not adapted to the purposes for which he designed it. Perhaps more than half the quantity of short wool produced in England is not free from this defect, a circumstance which should lead the grower to attend to it more minutely than he has done. All artificial tinges, which he gives to the fleece by means of ruddle or ochre, or any substance of that description, in order to increase the beauty of the flock, injures the pile as much as the rouge used by our ladies of fashion, to heighten their native charms, does the skin to which it is applied. When this painted wool is submitted to the dyers hands, unless washed at some little expence of time and labour, the foreign substances mingle with the colouring ingredients and spoil their effect. But indeed what can we expect but dull and heavy tints, faint, muddy and uncertain colours, where wool is dyed, as is too much the custom in Yorkshire, without being scoured, in pans unwashed, and with materials mixed together upon a floor unswept, where a little before perhaps have been mingled ingredients calculated to produce a totally different tint. Such slovenly practices deserve reprehension. The French are said to be much cleaner in their manner of dying than we are, and their colours superior to our own.

Another object to which the wool-grower should attend more closely than he has yet done, is the Specific Gravity, or relative weight of the pile. If desirous to ascertain the comparative weight of different samples, he must carefully bring each of them to the same state of purity; must drive off the moisture which wool obstinately retains, and extract from it all

all the air lodged in the interstices of the staple. If this be not exactly performed, the experiments he may institute will be trifling and delusive. When first attending to this subject, in order to render my judgment of its value more correct, I conceived that the gravity of all wool, like that of pure gold, was exactly alike, and supposed that a correct knowledge of the real weight of pure wool would enable me to ascertain, with the utmost precision, the quantity of other substances mingled with it. But it soon appeared that wool in the purest state to which I could attain, did not possess exactly the same relative weight; that when compared with water, it varied from seventy five to a hundred, i. e. some samples were really lighter than others in the proportion of four to three*. The experiments were deemed correct enough for the common purposes of trade, but are not considered as sufficiently accurate for the nicer calculations of the Philosopher. Nor was I able to ascertain, whether the difference observed was merely accidental in the particular wools under inspection, or followed some general law connected with the breed, or the circumstances in which the pile was produced. The mere coarseness or fineness of the staple does not affect the specific gravity of it, nor does the fine, close and well-grown wool of the

* A fact which has come to my knowledge since this was written, renders it probable that different kinds of wool do not attain the same degree of purity, even when scoured with the utmost care in warm water and dissolved soap; and that in the subsequent processes of the manufacture, some samples loose another portion of impurity while others retain their full weight; so that the largest quantity and weight of cloth is sometimes obtained from that wool which seemed least qualified to produce it.

shoulder differ very materially in this respect from the thin and hairy breech. The clothier commonly examines this property of wool without being conscious of the principles upon which he depends; he is well aware that a given weight of some kinds of wool will produce more cloth than the same quantity of a sort equally fine, shorn from a different pasture; but he usually attributes the differences of bulk, which he perceives in sheets of wool, to the purity of one sample and to the extraordinary quantity of dirt mingled with the other. Such a decision is generally very correct; but when he measures the size of a sheet with his eye, and tries the tenseness of it with his fingers, he should recollect that there is a great difference in the elasticity of wool, in the manner in which the pile is disposed, in the mode of packing it, and in the specific gravity, which may cause as great a variation in the appearance of a package, as that arising from the purity or dirtiness of the staple. The importance of rendering wool as light as possible, is clear to every one who considers that the quantity of cloth, which a given weight will produce, is the true test of its value. Yet the grower, as though totally negligent of so plain a principle, has often been solicitous to increase the weight of his fleece, without considering whether he augmented the quantity or the density of the pile; a distinction with which every clothier must be acquainted, although he may express his ideas in different language, for he buys the material by weight, and sells it when manufactured by measure. In this case there can be no doubt respecting the person from whom we must expect improvement. The manufacturer cannot change the nature of the materials; he must work such as he finds, and from among imperfect

fect ones select the best. But since the art of combining the properties of the parent sheep in their offspring is generally known, the grower of wool has it in his power to produce surprising alterations. Nature has appointed agriculturists the chief dispensers of her favours, and society justly expects much from their attention.

The smell of wool, though very often applied to as a test of its condition, is one of the least important circumstances connected with it. Provided it produce no disagreeable sensation upon the olfactory nerves, and betray none of the effects of moisture there is no one particular scent which we deem preferable to another. Pure and perfect wool, I suspect, has no smell; yet it is a very singular fact, that fleeces produced in different countries, and even in the various provinces of the same kingdom, convey by their peculiar odour a strong attestation of the district were they grew. The fact depends chiefly, I suppose, upon the constitution of the animals; because the fleece of a ram is distinguishable from that of any other sheep, and quadrupeds of different tribes are well known to produce very dissimilar sensations on the sense of smelling. It would be curious, perhaps more than curious, to ascertain the cause of this fact more accurately, especially as our researches into nature are generally repaid by the acquisition of useful knowledge.

But a far more valuable quality remains to be noticed, one which the wool-grower should observe with the closest attention. In technical language, it is called the trueness of the hair; and I know of no other phrase, which so completely conveys the idea. When speaking upon the quality of fleeces as they

exist in a neglected state, it was observed that they are composed of coarse shaggy hair, and a more soft and downy pile. The natural effect of culture, is the banishment of the coarse and brittle filaments from the staple, and the increase of that substance, which is more soft and pliable. But without minute attention, it requires a long coarse of years to render the pile perfect; and the cultivators of the fleece relax their attention most commonly before they have rendered the pile uniform. Most of the fleeces of Scotland are still defective; many of the finer sorts produced upon the English plains, and even those of Italy and Spain, notwithstanding their boasted superiority, cannot claim an absolute freedom from a hair which debases the staple. Sometimes these inferior filaments are thinly scattered through the pile, and rising above its general surface, give it a loose appearance which authorizes the common representation of it as a bearded fleece.

Under the general description of wool not true-haired, we also include that in which the points of the staple are coarser than the part of it which rose to a less distance from the pelt; and also that where any portion of the filament is perceptibly thinner than another to the unassisted eye. When examined with a microscope, we seldom find wool equally fine through the whole length of the pile. Frequently it becomes suddenly thinner, as though the pore through which a filament passed had been contracted, and gradually expanded itself again to its natural dimensions, permitting the hair to become in the same proportion more thick and even. Sometimes a hair when seen in profile, has one of its outlines straight and even, while the other is very irregularly indented,

as

as though its pore had suffered a contraction only on one side. Each of these minute variations confirms the opinion of Dr. Anderson, who supposes that the pores of the skin expand and contract as the temperature, to which the sheep is exposed, rises to a higher degree of warmth or becomes more cool. Yet as these irregularities do not materially affect the value of manufactured articles unless easily distinguished, it seemed right to bound the description of a bad quality by a restrictive phrase. When these sudden contractions in the size of the pile occur in long wool, the effects are much more pernicious than in the shorter piles, for they often render the staple too weak to endure the violence of the comb; and totally unfit it for its natural and appropriate manufacture. This thinner part of the filament, which the manufacturers denominate a joint, is more frequently observed in hog fleeces than any other; and is commonly found near the bottom of the staple, evidently the effect of a cause which operated while that part of the pile was passing through the pelt, and which continued to affect it only for a short period; for the parts of the staple immediately above and below the joint appear in their natural state. The precise period when the effect was produced, may be ascertained by observing the length of wool which has grown since; and perhaps this circumstance may lead to the true cause of it, which I believe will generally be found to be either cold, hunger or ill health. This joint is more observable in long wool than short, doubtless because the former grows much more rapidly than the latter, for a sheep of the heavier breeds produces a staple of fifteen inches long, in the same time that one of a different kind perhaps will

will not extend to more than three; and the animal yielding long wool is commonly more tender than the other, less able to endure the bitterness of the blast and the gnawing pains of hunger. Perhaps the difference between one part of a filament and another, may be more considerable than wool-growers are aware of. I have met with some hairs, selected from the worst part of a fleece, where the difference between the diameter of the point and that of the other end was at least as five to one; so that a given length of pile, when selected from one part of the staple, weighs twenty five times as much as the same length separated from the other part. This extreme case is mentioned in order to convince the grower, that the trueness of the hair is a quality of no trifling consideration, and if possible to excite his attention to it, for there are very few British fleeces in which the points of the staple are not visibly coarser wool than their bases. 'Tis with pleasure we acknowledge that much has been done to remedy the defect, although constrained to add, much remains to be effected.

The short account already given of the operations of carding, combing and spinning, is sufficient to show how very important it is that the manufacturer should be able to select wool of a perfect pile, more especially that it should possess no inequalities of the filaments; that they should be equally elastic and strong through their whole length; for wool destitute of uniformity in any of these particulars will place its coarser portion upon the surface of the cloth. This fact is repeated, as one which ought to be imprinted upon the memory both of the stapler and the shepherd.

Another

Another kind of hair is sometimes found in the staple which is more pernicious to cloth and most other articles, than the filaments already described. It is generally short, pointed, brittle and opaque, exactly like that produced upon the faces and shanks of most English sheep. Its colour is commonly white, sometimes grey or brown; and among British manufacturers it is called a kemp or stichel hair, and not unfrequently from its resemblance to that of the feline species, cat's hair. Kemps are commonly much coarser than the wool in which they are found, and often so intermingled with it as not to be separated even by the motion of the scribbling machine. They will receive no artificial tints, but from the most corrosive ingredients; and by their hardness, the sharpness of their points and their coarsness, spoil the article in which they are mingled. The fleeces most commonly infested with them, are those produced by neglected breeds of sheep, or animals grown old, and are common both to British and Foreign families. In long fleeces they are not very frequently observed, but when met with, are collected in the noil and render it much less valuable.

These are the most general qualities of the fleece to which the manufacturer attends, and we hope, that they are described in such a manner as will enable the wool-grower to form some distinct notions upon points, which he should keep constantly in view. He has often complained that the stapler appeared to him capriciously to prefer one fleece to another, and has been confounded to observe that improvements suggested and warmly recommended by one buyer, have been totally disregarded or condemned as pernicious by another. But had the farmer recollected,

recollected that wool is used for very various purposes, which require a corresponding difference in the materials; that the manufacturer of one article seldom understands the mode of producing another; and that most staplers content themselves with purchasing only one kind of wool; he would rather have expected a difference of opinion, than have been surprized when he found one. It is singular that a trade so very simple as that appears to be, which consists in purchasing a quantity of fleeces, breaking them into a number of arbitrary divisions, and selling the sorts in their raw state, should be so much divided: one of the best proofs that the art, simple as it appears, has attained a high degree of perfection. Persons who purchase their wool in the South of England, for instance, seldom either buy, or understand the value of, fleeces produced in the North. Some lay out their capital chiefly in the East, others almost intirely in the West, and some take only a middle course. Numbers do business in long wool, a great many confine themselves entirely to the shorter pile, while a few understand only the lower sorts; or trade in the finer, or in foreign wools alone. We speak not here of persons confined by local situation to only one kind of fleeces, but of those who reside in the very market where every kind is consumed, and before whom the kingdom and the world is open; of persons through whose hands by far the greater part of fleeces produced in the island must pass, and who perhaps are the most favourably situated for attaining correct information respecting the qualities of the fleece and state of the manufacture. They expect much from the growers of the pile, but are disposed to exercise candour towards them, recollecting that there are circumstances

circumstances in every farm to which the grazier must attend, whose nature he cannot change, and whose effect notwithstanding all he can do, will still be visible. It is desirable to ascertain how far their pernicious influence is unavoidable, and what are the means of counteracting it. The wool-grower's own interest, the main spring of almost every commercial and agricultural transaction, prompts to the investigation and to the use of remedies.

SECTION

SECTION IV.

THE

Wool of England.

CIRCUMSTANCES already mentioned, naturally lead us to expect that the wool of England and Wales is distinguished neither for the best nor the worst of qualities. When the woollen manufacture was first seriously attended to in Britain, and encouraged by Edward III. upon liberal principles of policy, the fleeces of the kingdom had received very great improvement by the demand for them in the Netherlands. But the public taste at home, regulated by the climate and the simplicity of manners prevailing in that age, required a thick and heavy cloth, such as should unite the durability of the Doublet, with the softness, pliability, and warmth, which at that time could be obtained only from wool or from silk. To produce such plain and substantial cloth, was the object of the manufacturers; and as their conduct is much more readily influenced by the taste of the public than that of the court, they continued to make it, especially in the North of the kingdom, until the close

close of the seventeenth century; contributing by this means to raise the qualities of the British fleece only to the point of mediocrity. In the course of this period females changed in a great measure the mode of their dress, and instead of gowns of linsey woolsey, or home-spun cloth, they adopted the thinner, more delicate and shapely attire obtained from a variety of worsted articles; and even the other sex used them in considerable quantities. This change of fashion produced an amazing effect upon the fleeces procured from the richest pastures of the kingdom, and rendered them suitable to the comb. But the long wools also, from circumstances not now to be described, were left in a state of inferiority even below that which has been noticed in some of the lighter fleeces. Nations situated in more southern latitudes, and enjoying a dryer climate, finding the convenience of thinner and lighter textures, have carried the improvement of their fleeces to a greater extent.

In describing the fleeces of this country, it will be most proper to arrange them in the two classes, which are distinguished from each other both by the length of the staple and the mode of manufacturing them; the one adapted to the fabrication of woollen goods, and the other to that of worsteds. The sheep from which these different kinds of staple are obtained, do not always run promiscuously in the same flock, or graze upon the same pastures; each being most commonly found upon its appropriate soil, and under a peculiar management. Sometimes the line which separates them is boldly drawn, at others the pastures are so mingled, or the qualities of the land so gradually change from those which are suitable to

the heavier sheep, as to give the stock a sort of mongrel appearance, and the fleece an uncertain character. But human genius, always fertile in expedients, has rendered even this defect of the fleece advantageous to the interests of society; and has adapted to it the manufacture of stockings.

Long wool is found in many detached parts of England, but much more commonly on the eastern than western side, and often nearer to the coast than the middle of the kingdom. Sometimes it is produced upon a few acres which are surrounded by land of a different description, and grazed by sheep of another character; these tracts being too small to deserve general attention will be passed unnoticed, and the wool included in the common produce of the district where it grows. Among the larger ranges of long-wooled sheep, the first to be noticed, and the most northern, is situated near to the mouth of the Tees, a river separating the Bishopric of Durham from the county of York. The second, which may properly be denominated the Lincoln district, comprehends the south-eastern point of Yorkshire, nearly the whole of Lincolnshire, and the fen lands of Huntingdon, Cambridge and Norfolk. This kind of wool is found in the smaller marshes of Essex and of Kent which surround the inlets of the sea, but is much more abundant in those of Romney and of Guilford. We meet with it in the counties of Dorset, Devon and Cornwall, upon the Cotteswold-hills, in some detached parts of Lancashire, Oxford, Bedford and Stafford, through the whole of Leicester, Rutland, Northampton and Huntingdon, and along the banks of the larger rivers.

In these extensive districts, some of them widely separated

separated from each other, a much greater difference is observeable in the characteristic features of the sheep than in the qualities of the pile which they produce. Long wool is remarkable for the similarity of the fleeces both in weight and colour, in the length of the staple and the quality of the hair. The soil, the pasture, management and breed will make some minute difference, but when compared with the variety which abounds among small fleeces it appears of little importance. The animals also exhibit some general features, which seem to indicate that most of them belong to the same family. Among sheep bearing short wool, we easily trace a number of very distinct breeds; but throughout the eastern part of the kingdom, those which afford the larger staple have white faces and legs, and are destitute of horns, and perhaps in every case where the face exhibits spots, or the head produces a horn, the fleece may be long more from incidental circumstances than from blood. The very great exertions now made by sheep farmers to procure the best breeds, especially among the heavy sorts, tend to destroy their distinctive features, and to render them still more alike. Sufficient difference however yet remains among long wooled sheep to authorize a general description of them.

It is not necessary that their properties should be enumerated with the minute exactness which a grazier requires; it will be sufficient to mention some of the stronger features, such as enable the stapler to distinguish the families from each other, and to arrange the fleeces with tolerable correctness. The Dishley, or the New Leicester, known also by the name of its first promoter Bakewell, has spread itself far more widely than any other kind, and is

perpetually gaining ground almost to the extinction of some older breeds. It is a sheep not very large, but possessing a round compact carcase, entirely covered with wool of a moderate length. The front is flat without any tuft, the face rather small and pointed, of a perfectly white colour, and its countenance is mild and placid. It is a polled breed and in common with all English sheep has no wool upon its legs, and the fleece appears externally close and even. The Lincolnshire sheep, which formerly was almost the only animal of the kind known through the fenny district, bears a longer, more coarse and shaggy wool, upon a larger and rougher carcase. It has longer legs than the Dishley, a visage less pointed, particularly in the lower part of the face, the forehead often produces wool, its features are large and heavy, and its countenance rather bold and daring. This also is a polled breed, with white face and legs. The Teeswater is a still taller and more lank animal, perhaps the largest breed of sheep in the kingdom. It has a white face and legs, no horns, and bears a remarkably long, rough and heavy kind of wool, but is now seldom found pure, the Bakewell and other breeds having been adopted in its stead. The long-wooled sheep of Romney Marsh are above the middle size of most which are found in England, but not so heavy or well formed as some others; they have no horns, and in general white faces and legs, but sometimes dark or spotted ones. The carcase is often very rough, resembling the neglected breeds of the midland counties, and the legs are disproportionably long. Their wool is only of a moderate staple, and sometimes very thick upon the pelt. In Devonshire, the sheep bearing this kind of wool

wool have also no horns, but a grey or mottled face and legs, with a thick and heavy carcase. These are chiefly found in the southern parts of the county, but very frequently others are described as producing long-wool which have horns and white faces, their fleece however is of a dubious length, and in some cases may be used for worsted goods; but the fact will be noticed more particularly when we describe the wool of this district more minutely. The last breed of this kind of sheep, extending itself over a considerable space, is that of the Cotteswold-hills, which though placed upon high and dry soils produces wool of a good length. The animal is of a middle size, destitute of horns, has a white face, short legs and a light fore quarter. Mr. Marshall thinks it the native stock, and contradicts the opinion, so commonly entertained, that Spanish sheep were improved from this breed of English ones.

Some idea may be formed of the compactness of the staple, or as manufacturers term it the "cloddiness" of the wool, by comparing the length of the pile and the weight of the fleece, with the extent of surface upon which it grew. In stating these dimensions however we cannot be exact, since fleeces obtained from the same breed of sheep often differ from each other very considerably. Those procured from the Dishley blood may be estimated at nearly eight pounds, and as the staple is rather short than otherwise, and the carcase of the animal round and compact, the number of square inches contained in the pelt is not very large; and of course the wool grows moderately thick upon it. The Lincoln breed has a larger pelt which produces perhaps about eleven pounds of wool, but the staple is much longer than that

obtained from the Leicester sheep, and growing upon a larger surface must be more thinly set, for the difference in the length of the staple is more than sufficient to counterpoise the superiority of weight. From the Teeswater sheep, a very large animal, and bearing wool of an extraordinary length, which is often not so clean as the Lincolnshire, and I should judge specifically heavier, we obtain only nine pounds for each fleece, a circumstance which plainly indicates the defect of the staple. On the contrary, the Cotteswold race of sheep, as I passed over their native hills some years since, appeared to be smaller animals than most others which bear long wool, they produced about six pounds and a half, but shorter than either the Lincoln or the Teeswater. The fleece is now said to have increased its weight, and extends even to nine pounds, a circumstance which indicates that the staple is both longer than it was and more full of hair; that the pile is improved and the profits of the grower increased.

But before we enter upon a more particular description of the wool, which these kingdoms produce, it may be proper to state the sources of information, and the manner in which it has been applied. My own knowledge of the different kinds of fleeces has been derived from that attention, which every woolstapler finds it necessary to give to them, assisted by a residence in different parts of the kingdom, where all the three kinds of English wool passed immediately under my eye; and additional information has been obtained by occasionally visiting the remoter districts. Yet there are parts of England which I have never seen, and in order to obtain some knowledge of the fleeces produced there, the best local descriptions have

have been carefully perused. The accounts of the fleeces and the circumstances connected with the object of inquiry have been selected, and condensed with my own remarks in the following pages; nor do I conceive that they are less worthy of credit, because they were not actually drawn by my own pen, from observations made upon the spot. Perhaps they may be better worthy of regard, for it is now several years since some of the excursions alluded to were made, some of them without any reference to the fleeces of the districts, and all without the slightest idea of presenting to the public an account of English wool.

The alteration which has been continually taking place in the mode of sheep-farming for the last twenty years, is a circumstance known to most. The number of new inclosures, which have succeeded each other most rapidly, produces a considerable alteration in the kind of sheep which are kept in any particular district, and in some cases banishes them from the fields entirely. Even the improvement of the stock, now adopted with so much spirit, and which mingles the blood of different sorts of sheep, has produced a greater ambiguity in the features of the flocks, and the characteristic marks of the fleece, than the inclosure of commons. It has served most effectually to change the produce of a great number of farms, and contributes to render our description of wool imperfect, especially since in many instances it has been necessary to refer to accounts which were published from ten to forty years ago. And though every mean has been adopted to correct the statement of each particular by the most modern hints which have been communicated, yet the indulgence of the

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public is requested for the errors, which may have crept into the following statements, from these and other sources. The description pretends to nothing more than the best opinion which could be formed upon a very intricate and difficult subject, in the pursuit of which it was sometimes necessary to explore a pathless region almost without a guide or an object to direct us.

Yet it is much more easy to describe a fleece so as to be intelligible to a wool-stapler, than to ascertain the quantity of land upon which it was produced, or to form any accurate opinion respecting the number of acres in the kingdom employed in the sustenance of sheep. In the description of the rural affairs of England and Ireland, it is not uncommon to find an account of the number of acres which a farm contains, and of the sheep which it nourishes; these have been collected and arranged according to the districts to which they relate, and the average of their aggregate sum, considered as a fair representation of the stock in the county. But here also it must be acknowledged that a great deal has been left to chance; sometimes the accounts of farms, which have been given to us, may be far from a just representation of the districts where they are situated. The land may be distinguished by its suitability to that kind of stock, or by the contrary quality. It may produce a larger weight of wool than that which surrounds it, or be chiefly grazed by black cattle, though part of a district celebrated for its numbers of sheep. Sometimes a very considerable common right is annexed to a farm, which is not included in the measure of the land; in this case the stock is not maintained by the number of acres, which are mentioned

tioned in connection with it, and the average of the district will be overrated.

It was thought most convenient to connect the average of the stock with the area of the counties, because it was much more easy to ascertain the extent of the kingdom in that than in any other form; and the few cases wherein there has been a deviation from this rule will be distinctly mentioned. The measurements of the counties are always taken from Cary's English Atlas, for the southern part of the island; and though his opinion of the extent of a county often differs from that of other persons, it seemed more advisable to refer to one authority than to puzzle the reader with a variety of measurements, and be under the necessity of vindicating the credit which was claimed for each. But here also is a source of error, for districts which have been measured by means of the most accurate maps always deviate from the truth, and being laid down upon a plane parallel to the horizon, no allowance is made for the eminencies of the country, although they may rise into the most lofty mountains. Farms on the contrary are always measured upon the surface; and the difference resulting from these two modes of ascertaining the extent of a country, will often be as great as that which subsists between the sum of the two sides of an irregular prismatic body and the third; sometimes as great as that which subsists betwixt the superficies of a cone and its base. Nor is the whole of a farm to be considered as productive of wool, for the measurement most commonly includes the hedge-rows and coppices, frequently the homestead and the buildings. And the extent of surface when obtained from a map includes not only these but also the area

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of towns and buildings of every description, of woods, of water, of absolute wastes, and of public roads. As a counterbalance to these, one eighth part has been generally deducted from the given extent of a county, and in cases where the deduction has not been made reasons are assigned for the deviation; and though in some instances this allowance may be too considerable, there are a few others where it is certainly too small. Upon the whole being sensible that a danger of falling into error perpetually attended me, like an anxious pilot, steering through an Archipelago with imperfect charts, and assisted only by the dim twilight of the evening, I have been solicitous as often as possible to heave the lead, and to catch the faint glimmerings of the distant light-house, which shall guide me safe from shipwreck. Should the breeze of public favour blow steady and true to its point, and the tide of candour set strong in my favour, I shall be able, I trust, to weather every cape, and to pass through the most intricate channels without striking. The opinions expressed in the following pages, are as often as possible compared with those of other persons; and where we differ, both are submitted to the judgment of the public. To say that the statements contain no errors, would be the height of presumptuous folly; to represent them as a mere tissue of blunders, I conceive, would be equally unjust.

Beginning with the northern part of the kingdom, in order to give more regularity to our progress thro' the different districts of long-wool, the Teeswater sheep first attract attention. They derive their name from that picturesque river, whose waters separate the Bishopric of Durham from the county of York.

York. Being adapted only to the richer soils, they are almost confined to the low lands, which extend on each side of the river to some considerable distance from it. Their district is comparatively a small one, being bounded by the sea, and by the high lands of Durham and of Yorkshire proceeding westward until they decline into that fertile vale, which enriches the border of both counties, and leave an opening for the breed to diffuse itself more widely to the North and the South; on the West it proceeds no farther than to the foot of those hills, distinguished by the name of Teesdale Forest. In the vale of York, the features of the Teeswater sheep are greatly softened by a mixture of the Dishley blood. The fleeces of this country, although said to be beautiful, appear to me, judging from the unwrought staple and from the small quantity which has fallen under my notice, to be defective in some of the essential qualities of wool. The hair glitters too much where the yolk has been washed from it by the rain, is heavy, sometimes hard, and not always true; being more fine and soft at the bottom than the top of the staple. The breech of the fleece is large and hairy; and the pile contracts from the earth a dingy colour, and is very imperfectly washed. It should be remarked, however, that the wool which I have examined in the possession of both the grower and the manufacturer, was entirely on the northern side of the Tees. Among its good qualities were observed the length and the toughness of the staple, which fit it most admirably for the operation of the comb and the coarser kind of worsted manufactures. The sheep breeders here will doubtless promote their interest, if they take care that while the carcase is improved by the Dishley sheep,

sheep, the fleece does not become too weak and too short for its natural and appropriate purposes. From a sheep of this description truly bred the fleece has varied from six to eighteen pounds; when crossed with the New-Leicester, and the Northumberland, it weighs from six pounds to ten; and the average one obtained from the richer soils of Durham cannot be estimated at more than nine.

The stock of these sheep upon a given quantity of land is very various in different parts of the Bishopric, generally changing from half a sheep kept upon an acre of land to more than double that quantity, upon the whole perhaps it may amount to about two upon three acres. The extent of land suitable to this kind of wool cannot possibly be more than one third of the whole county, for both the eastern and western parts of it are very hilly though commonly green. The lower soils are rich and loamy, well adapted to the growth of valuable wool. After deducting one eighth part, as mentioned above, for wood, water, buildings, and public roads, the number of productive acres is one hundred thousand and eight hundred; with a stock of sixty seven thousand two hundred sheep, and yielding two thousand five hundred and twenty packs of wool. A considerable proportion of it is manufactured in the county, and contributes among many other circumstances, particularly the exportation of its minerals, to enrich the inhabitants. The weight made use of here between the buyer and the seller of wool is the stone of fourteen, eighteen or twenty four pounds.

In Yorkshire, whose varied soils, climature, and agricultural systems give rise to a diversity of its wools, we notice the kind more particularly under con-

consideration, distinct parts of this extensive county produce it, especially the division of Cleveland, situated in its north eastern extremity, and Holderness, that long promontory which is washed by the Humber on one side, and the ocean on the other. Some of the narrow vales on the western side of the county, fertilized by its numerous streams, produce also a variety of long wooled sheep, and feed them even to the bases of the neighbouring mountains. The existance of a small manufacture of worsted goods in these delightful dales has given a stimulus to sheep farming, and guided the shepherds' taste; but in the more expanded vale of York, although great improvements have been made in the carcase and the fleeces of the sheep, and a part of the wool is adapted to the comb, yet the neighbourhood of the woollen manufacture converts almost the whole quantity to its own purposes.

Over the division of Cleveland the Teeswater breed has very generally spread itself, and until the value of the Bakewell breed had been ascertained, it was the only kind of long woolled sheep to be found in this clayey district. After the usual deductions are made, it contains sixty one thousand two hundred and fifty acres; maintaining about fourteen thousand three hundred sheep; which produce, at the average weight of eight pounds each, a quantity of wool amounting to four hundred and seventy packs. The fleeces here are similar to those on the other side of the river, and have the same destination. The whole quantity produced by this once rough, but now more polished race is nearly three thousand packs.

As no means present themselves of ascertaining the quantity of land occupied by the heavy kind of

sheep in the dales of the Moorlands, and as the quantity of wool wrought there upon the comb can be only small, it may be included among the shorter fleeces without producing a material error in the calculations of either kind.

But Holderness furnishes a wool of more decided character. This part of the county was formerly stocked with sheep of the Lincoln race; but now, like most districts of a similar kind, depastures flocks, in whose frame and fleece are visible some strong symptoms of a more fashionable breed. In these low and fertile tracts of heavy land, the breeding of cattle is the main object of the graziers attention, and renders the stock of sheep singularly light; the utmost number which I have been able to ascertain being only twenty five upon a hundred and seven acres. These indeed are large and well-formed animals, producing heavy and long-stapled fleeces; the average of whose weight can scarcely be less than eight pounds, nor the land upon which they are grown of smaller extent than a hundred and twenty seven thousand six hundred and eighty productive acres. But as this quantity of pasture is ascertained only by the measurement of a map, at best a precarious mode, it is peculiarly liable to error. The allowance of one eighth of the surface in such a country as this, intersected by few public roads, and these only narrow ones passing through the fields of the grazier; where there is scarcely any waste land, but little water, and towns of the smallest kind; must be very ample for every deduction which ought to be made from the gross area. This description of the country is given rather from a passage through the western part of it, than from a general view of the whole extent.

tent, and round the coast it appears to be more open and less fertile. The estimated quantity of wool which it produces, is two thousand eight hundred packs, the fleeces of eighty four thousand sheep. Most probably a great proportion of this is wrought into woollen articles, and the whole, I believe, is sent to the manufactures of the West Riding.

This division of the county of York should be considered as a part of that immense tract of land producing long-wool, which extends from Holderness into Norfolk, and from the centre of Warwickshire to the sea; a district which produces a great variety of fleeces, and contains within its limits some considerable tracts of high land, adapted to a lighter fleece, and to an arable system of husbandry. Upon these higher grounds the wool, though neither light nor short, is much better adapted to the card than the comb, and in the calculation for the fleeces must be separated from the general produce. Yet it is impossible to effect this in all cases with the precision which is desirable; for even upon some of the light soils, sheep of the heaviest kind are kept and by means of the most nutritious food, not always derived from the pastures to which they belong, may be compared, both with respect to the carcase and the fleece, to those flocks which have been supported upon the richest meadows. The change of manufactures also has caused a large quantity of the wool, produced upon the lowland farms, to be wrought by the carding machines, and applied to the manufacture of woollens.

Lincolnshire possesses great natural advantages for the production of long-wool; and is the spot upon which probably it was first cultivated with

spirit and success. These are the pastures from which the looms of Norfolk were supplied for almost five centuries, and which through the greater part of that period have yielded an unrivalled fleece. The long-wool of Leicester rose into consideration at a much later date; and though now the Dishley blood has insinuated itself into almost every part of the neighbouring counties, and though the old breed of Lincolnshire has been almost supplanted, the contest between the advocates of the two kinds of sheep subsisted long, and is not yet forgotten, a decisive proof that the large rough animal of the fenny tracts had attained, both in carcase and wool, a great degree of perfection. Upon this district we enter with sentiments of respect for the memory of its ancient shepherds, and feel confident in the modern guides who have conducted us through its greenest pastures, and among its yet undrained morasses. When the name of Young is mentioned, every agriculturist recollects the character of that celebrated farmer, who fills with his usual intelligence and activity, the office of secretary to the Honourable Board; to his remarks I am indebted, and they confirm the observations made when passing through this amazingly fertile district in different directions; and also those which had been collected from the writings of others.

In the space of a few years, a great change has taken place in the sheep of this county, and the fleeces which they produce. Most of those pastures which have been distinguished by the weight of their stock, both in cattle and sheep, instead of containing the large tufted animal which has been described as the native of Lincolnshire, exhibit the combination between that and the Bakewell breed in a great variety of

of degrees. The pure Lincoln blood was rarely to be met with in a journey through the richest part of the county, undertaken during the summer of 1804, in order to observe the fleece; but the sheep approached the most nearly to it, in my apprehension at least, in the neighbourhood of Boston. The introduction of the New Leicester breed has undoubtedly rendered the wool finer and shorter, the colour also is improved; but it has lost a large proportion of that toughness, which is an indispensible quality in good combing wool. If it could be restored without reproducing that brilliancy, once observeable in some of the fleeces, and without rendering the pile more solid, or coarse, the staple would be still father improved. Undoubtedly the lighter and more tender kind of wool, produced in the county is very valuable in the manufacture of the rougher woollen articles, but it deprives the nation of the advantages arising from the worsted fabrics. Some few political writers have expressed themselves as though they thought it of little importance whether the richest pastures of the kingdom, and particularly of this county, produced a sort of wool fit for the comb, or that which is adapted only to the card, forgetting that the fleeces wrought into worsted goods employ a much larger capital, and a greater number of hands to manufacture them; and being exported produce to the community, a more considerable return than the very same wool would have done, had it been wrought into woollens. The difference in favour of worsted goods, if it be calculated without entering very minutely into the question, is nearly as three to one. I do not mean to intimate that articles of worsted will allow three times the price for the raw material that those of

woollen will afford ; but that if a sum of money be laid out in wool which may be wrought in either mode, and half of it be manufactured in one way, and half in the other, then the capital employed by one of these quantities, the wages paid for the manufacture of it, and the incidental expences which are incurred before it reach the foreign consumer, will render it necessary that he should remit to this country three times the amount, that he will send for the other ; and that the advantage to the community is of course in the same proportion. But the present conduct of breeders who are desirous of obtaining a fine, light, and tender fleece from the land which is calculated to produce long-wool, is such as would ultimately banish the worsted manufacture from the kingdom, was it not prevented by that irresistable spirit of trade which Sir Joshua Child so correctly described, which will always procure the articles in demand, and in this particular case prevent the total alteration of the British long-wool. Graziers in the county of Lincoln indeed are afraid to adopt measures calculated to render their fleeces weighty, because they have not yet forgotten how much the value of wool was reduced, and what a large quantity was left on hand every year during the continuance of the American war. But at present there is no apparent danger of producing a similar surplus ; for at that period, the markets were much more effectually shut against the British merchant than it is probable that they ever will be again, without the concurrence of circumstances more surprizing, than even those which have been witnessed during the last fifteen years. It is not at all probable that he should be excluded again from both continents at the same time,

time, and the possession of Malta by the British enables him to trade with security and success, even to the shores of the Levant. So long therefore as the demand for worsted goods continues both in the eastern and western markets, the farmer may rest assured that fleeces of a long, sound, and tough staple will be in request. If he need any conviction respecting the value of Malta to the trade for English worsted goods, let him compare the price of long-wool in the summer before the battle of Aboukir, with that which it sold for it in the next season, and he will find the most ample satisfaction.

The county of Lincoln is so well adapted to the production both of long-wool and that which is wanted for the coarser woollen goods, as to render it highly desirable that each kind should be cultivated there to perfection, that the shepherd should adapt his fleece to one particular object, and banish from it all ambiguity of qualities, for since there is as much difference in the purposes to which the two kinds of wool are applied, as there is in the uses to which wheat and barley are appropriated, so there ought to be as much care taken to preserve the fleeces distinct from each other, as to prevent the corn from growing intermingled upon the same land.

In the low lands of this county which are situated in the southeastern part of it, the stock of sheep is remarkably heavy. One account has stated it as high as eight upon a single acre, and another when describing the mode of farming upon a similar soil, though remote from the fens, estimates the stock of sheep at seven to the same extent of land; but in both cases the farms comprise the best of soils, and the lambs are most probably included in the quantity of stock, and perhaps

haps there might be a greater proportion of sheep, and fewer black cattle, upon these farms than is commonly found upon those of a similar description. Correcting these accounts therefore by others, it appears that the average number of sheep upon each acre is nearly three. The whole extent of the richer pastures is about four hundred, thirteen thousand and nine hundred acres, one eighth being deducted for the space occupied by water, roads, &c. If this statement be correct, the number of sheep which they support, is something more than one million two hundred and forty thousand, producing about forty six thousand five hundred packs of wool. Upon this kind of land the fleece is estimated at nine pounds, which probably is not far from the truth, because it sometimes reaches to fourteen, and in estimating the produce of the county, those who are well acquainted with it, state the fleece at eight pounds, eight and a half and at nine; the average is stated so low, because in some parts of the county sheep do not produce more than five pounds of wool.

Upon the marshes which extend from the mouth of the Humber along the coast, until it meet the southern boundary of the county, and which probably contain about two hundred thousand acres, the stock of sheep varies very considerably. In the winter season, and during those years when the land is wet, the number of sheep is very greatly diminished; and even in the most favourable summers it must not be estimated at more than half a sheep to an acre of land, affording for each fleece about eight pounds of wool. The result therefore upon these soils when expressed in round numbers, the usual deductions being made,

made is eighty seven thousand five hundred sheep, and almost three thousand packs of wool.

In the other parts of Lincolnshire, the land is of more miscellaneous quality, and carries a stock upon different farms suited in a great measure to the peculiarities of the soil. Upon the Wolds and the Heaths of Lincoln and Ancaster, the fleece was formerly much lighter than in the richer parts of the county; but now the size of it is greatly increased by the system of grazing, the combination of blood, and the care which is commonly taken to procure a large quantity of winter food, and to furnish the flock with more nutritious aliments than its usual pastures will afford. With such assistance, and the general introdution of the New Leicester breed, the farmers are enabled to keep a greater number of sheep, and to produce both more mutton and more wool, than they could have furnished without it from soils naturally dry and sterile. In a few instances, even from such land assisted by oats and oil cake, as heavy a fleece has been obtained as from sheep fed in the most luxurient pastures; a convincing proof that the constitution and nourishment of the flock are of more consequence, in the production of both mutton and wool, than the climate or the soil, or any other circumstance. But in these parts of the county, there is a quantity of wool produced which is fit only for the card, and for that reason must be included among the short wools of the kingdom. The extent of the tract of miscellaneous land which affords wool of the longer kind, is nearly seven hundred fifty eight thousand and five hundred acres; but unfortunately the stock which is kept upon it, is not always mentioned with that precision, which is desirable in the descrip-

description of rural affairs, sometimes it is blended with that of the more elevated farms and not unfrequently with that of the richer districts. According to the best judgment I can form, it amounts to about two sheep upon three acres, each yielding a fleece of eight pounds. The number of the sheep therefore is nearly five hundred and five thousand seven hundred; and the quantity of wool sixteen thousand nine hundred packs. Yet this is probably something below the actual produce of this quantity of land; because there are few counties whose stock upon the more elevated farms has undergone such a general alteration, and the breed lately adopted will feed closer upon the land than the old one, and in collecting the number of sheep, it was necessary to refer to accounts which have been long published.

If some allowance be made for these circumstances, this statement of the stock of Lincolnshire will not differ materially from that which is given of it by the Secretary to the Board of Agriculture in his View of this county. The two accounts are calculated in a very different manner, but produce a result respecting the number of sheep, so nearly corresponding with each other as to afford mutual support, and lead us to imagine that neither of them are very incorrect. Mr. Arthur Young calculates from round numbers; and in the year 1800 supposed that the average fleece of the county would weigh nine pounds, and that the whole quantity of wool produced was more than nineteen thousand packs above the number which I have estimated. The difference seems to arise from the supposed weight of the fleece; which that gentleman takes as the average one. He made his enquires with the interest which he always takes

takes in questions of this nature, and published them with his usual precision and candour, and might be sufficiently accurate at the time he wrote; but at present his calculation appears too high, even from the circumstances which we collect from the View itself. Mr. Young reckons the average fleece of the Lincoln breed at only ten pounds, that of the pure Dishley blood grown in this county at seven and four-fifths of a pound, and the wool of the mixed family at nine. But within the last five years, the Dishley sheep have been very generally introduced, and their fleeces, almost constantly growing lighter, have rendered the total quantity of wool less considerable; and the average of nine pounds seems particularly to refer to fleeces grown upon the richer pastures, not noticing the quantity of clothing wool which the sandy soils produce. From these considerations, I am induced to hope that the statement already given, does not differ very widely from the truth, although it must be acknowledged that it leads to unfavourable conjectures respecting the worsted manufacture; for to the pastures of the midland and eastern districts, the looms of Norwich, of Sudbury, of Northampton, and of Halifax, must still be indebted for the materials of workmanship.

The long-woolled breeds of sheep have diffused themselves over a small proportion of Norfolk, and abound most in that western part of the county, which being separated by the Ouse from the more elevated districts, is called Marshland, on account of the depressed and moist nature of the soil. The same kind of wool is also found in very small quantities upon the low pastures distributed in the eastern point of the county, and upon the banks of the Yare. Probably

bably the flocks of Marshland were originally introduced from the neighbouring fens; for though smaller, and producing a lighter fleece than the sheep of Lincolnshire, they exhibit so many points of resemblance as to convince most who observe them, that they belong to the same family. The near neighbourhood of a lighter stock may have contributed to render their features less distinct, and their fleeces less heavy. These low tracts generally produce long-wool adapted to the worsted manufacture, and wrought into that description of goods at Norwich. The quantity of stock kept in this extreme part of the Lincoln district, is about eleven sheep to eight acres, each yielding a fleece of seven pounds. The whole extent of land in this division of Norfolk is about thirty two thousand acres; and that of the other marshes thirty one thousand three hundred and fifty, upon which the sheep producing long-wool are very few. But as there is no mention made of the stock kept upon a given space, the number of fleeces cannot be ascertained, and it will produce no material error if we omit it entirely. Perhaps the wetness of the pasture which is surrounded intirely on the land side by soils of a very different description, and has no communication with the larger districts producing long-wool, may have induced the farmer to attend more to cattle than to sheep. Upon the whole therefore, we estimate the number of long-stapled fleeces in Norfolk at thirty eight thousand and five hundred, whose weight amounts to eleven hundred and twenty packs.

The Lincoln district of long-wool comprises also a considerable proportion of Cambridgeshire. About half the county produces small fleeces, obtained from sheep

sheep which are nearly allied to the Norfolk breed; but upon the fenny lands and in the Isle of Ely long-wool is the prevailing kind, and is used for the same purposes as that of the dryer pastures in the manufacture of worsted goods. But the land is so very different from that of Lincolnshire, and its drainage and culture are so incomplete that the stock of sheep, which is kept upon it, must vary both in the breed and the number. A stranger, who passes from the rich meadows of Long-Sutton and Holbeach into the northern part of Cambridgeshire, is surprized at that change which takes place in the appearance of the country within a few miles, and without the intervention of more elevated pastures. Instead of the rich and verdant fields with which he was lately surrounded, he travels through a muddy district, overgrown with aquatic vegetables, and where the eye passes over an immense flat, and observes neither hedge-row nor tree to relieve the sameness of the prospect; for the round horizon is broken only by the naked and stiffly-formed windmill used as an instrument of drainage, and by the distant uplands of Norfolk and Huntingdon. A person unacquainted with these quaking roads, sometimes feels alarmed for his safety, and the desolation of the scene serves to preclude all hope of assistance. In such a country, it is impossible that the stock of sheep should be heavy; for when the land by some untoward accident, or an extraordinary wetness of the season is laid under water, the flocks are with difficulty preserved from destruction, and must be distributed among the farms which are more securely situated. On the return of more fortunate times, a stock is hastily repurchased from every quarter, where it

can be obtained upon the most advantageous terms; but the flocks by this means assume a motley and undecided character, and the parcels of wool contain a greater variety of fleeces than can be found in any other part of the district. From the black peatiness of the soil, the wool of this country assumes a blue and dingy appearance which never leaves it, even though washed with the utmost care; and the collection of different kinds of sheep in the same flock, produces a combination of qualities in the fleece, which are sometimes so incongruous as to render it ill adapted to every kind of manufacture. During the last summer, I examined a singular fleece from this country, whose staple not more than three inches long, and moderately fine, possessed all the brilliancy, stubbornness and ill formed curvature of the pile, which is found in the roughest sorts of the Lincoln breed; every staple had grown almost detached from its neighbour, possessed every disgusting quality when considered as short wool, and its length was totally unfit for the comb. It seemed the produce of a sheep whose progenitors had been of the most dissimilar breeds.

In this northern part of Cambridgeshire, so ill adapted to the comfort and health of the sheep, and where but little care can be taken of them while grazing a thinly inhabited country, it is not probable that the stock will exceed a sheep to two acres. An intelligent farmer, well acquainted with this tract, though residing in another part of the county, estimated the stock at one sheep to six acres, but remarked that the number in winter was much smaller than during the summer months, and appeared to form his opinion from the worst portion of the fens. If we estimate the number of sheep on the ground at the time

time of shearing upon an average of one to three acres, probably the result will not be far from the truth. But the whole quantity of wool produced here must not be included in the class of combing fleeces, for one third of the number at least must be deducted as that portion which is applicable only to the card. The quantity of long-wool then is nearly fourteen hundred packs, produced upon one hundred and eighty eight thousand acres of land, and by forty one thousand seven hundred sheep, each of them yielding a fleece of nearly eight pounds.

The soil of Huntingdonshire in different parts of the county, is adapted both to the long and short wools. In the north-eastern quarter, the fleece is large and well suited to the comb; but upon the dryer grounds approaching to the center of the county, and to the border of Cambridgeshire south of the Ouse, it becomes lighter and the sheep are a mingled breed, exhibiting some features which resemble those of the heavier flocks, and others which seem to have been derived from the Norfolk blood. This latter kind of sheep is evidently making progress in the country, and its features become annually more conspicuous, promising to render the wool grown upon the gravelly soils more adapted to the woollen manufacture. On the Northamptonshire border the fleece is of a more dubious kind; a part of it is combed in the neighbourhood, and employs the numerous poor in spinning, another part of it is sent to Leicester and wrought into stockings, a third portion finds its way into Yorkshire, and is used in the manufacture of woollens, while the remainder is distributed among the workshops of Bury St. Edmunds, and the looms of Norwich. Amidst flocks of such dubious charac-

ter, and in a country of which few particulars are given, it is not easy to attain complete satisfaction, either respecting the quantity of land adapted to the growth of long-wool, or the number of sheep which it maintains. Mr. Maxwell, the author of the Agricultural View of this county, whose account I have not seen, states the quantity of fennyland at forty nine thousand acres, which is something higher than the estimate of others. If we add to it an equal sum for the richer soils in the other parts of the county, and suppose that one hundred thousand acres are employed in the sustenance of long woolled sheep, and that each of them maintains a single animal, we shall most probably include all the combing wool which is produced there. The average fleece I apprehend cannot exceed seven pounds, even when confined to the most productive flocks; and leads us to suppose that the utmost quantity of long-wool to be obtained from hence is little more than two thousand and five hundred packs, shorn from eighty seven thousand five hundred sheep, and produced upon as many acres of land. In estimating the stock of Huntingdonshire and the quantity of wool produced there, the data are taken from an imperfect knowledge of that part of the kingdom, rather than from the opinions of people at present resident in it; and I presume, will be thought to be above the truth, for some of the fens are singularly moist, and they contain several extensive lakes.

This immense tract of low and fertile land, consisting of a large proportion of Lincolnshire, a small part of Northampton to the east of Peterborough, a portion of Huntingdon, the Isle of Ely, and that part of Norfolk separated by the Ouse from the rest of the county,

county, nature seems to have formed for the production of long-wool in the most perfect state to which it can attain; and it would be absurd, so long as the demand for that sort of wool continues, to appropriate such luxuriant and nutritious grasses to the support of naked sheep, as has sometimes been wished, or of those whose pile shall resemble that of the Ryeland or the South Down breed. The shepherds here will certainly find it contribute much more to their interest, if they continue to cultivate a fleece suited to established manufactures, and to those which have long depended for their existence upon the produce of these pastures, if they adopt those alterations which shall enable the worsted manufacturer to suit the present taste, than by introducing a fashionable breed of sheep, whose produce is better suited to other soils than they occupy, to other manufactures than have yet required it, and to other customers than have yet sought for the wools of Lincoln.

Perhaps it is scarcely proper to consider the range of the Dishley sheep, as a separate district from that which has just been described, because their blood is now most intimately mingled with that of the native stock in Lincolnshire, and their features are discernable in almost every pasture through that extensive county; yet as they still possess some distinctive character, and since agriculturists have not laid aside the old denominations, it is at least pardonable in us to retain them.

In Leicestershire, besides the small animals which rove through the lonely wastes of Charnwood Forest, and producing a short wool must be noticed hereafter, there were formerly two distinct breeds of sheep, known familiarly by the names of the Old and

New Leicesters; but at present the first of them has very generally given place to the last. The sheep of the Old breed were large rough animals, ill formed in many of the points to which graziers pay much attention, and yielded a long, tough, coarse and hairy fleece. Its colour however was much better than that of some other kinds of wool, and it possessed excellent qualities for the manufacture of worsteds. The race which succeeds it has been already described, is much handsomer in its shape, and produces a fleece more soft and fine, evenly grown, and possessing some other qualities of wool in great perfection, but which is in general too short and weak to be admitted among the first ranks of combing wool, adapted to the manufacture of worsted yarn. In the hose trade, a portion of it has become very useful, and the application of machinery to that manufacture will most probably require a larger supply. But the whole improvement which may be traced in some sf the wool of the Leicester district, must not be attributed to blood; part of it may be owing to the superior care which is taken of the sheep, and to the better management of the pasture where it feeds.

The district which is more immediately appropriated to the New Leicester breed, comprehends the pastures of its native county, the fields of Rutlandshire and the inclosures in the counties of Northampton and of Warwick; it includes also the richer soils in the eastern corner of Staffordshire, and the south of Derby. Throughout this extensive tract, the second in point of dimension which produces long-wool, the Dishley breed of sheep has been generally cultivated; its qualities have been infused not only into the flocks which graze upon the most valuable lands, but into those

those which lodge upon fallows, and in some instances have penetrated the close-bitten commons. The staple which it produces is from five to seven inches long, very commonly well formed, and of a colour beautifully white; and there are few districts in the kingdom, I conceive, where the fleece is kept so clean or sent to market in such good order, and not many where the grazier has been more amply repaid for his attention to the coat as well as the carcase of his sheep. Those which are so generally adopted have been described as remarkably deficient in the weight of their fleeces; but though the quantity of wool which they afford be smaller than that which is shorn from the Lincoln breed, yet weight is seldom considered as the only criterion of excellency; and when compared with the antient stock of the county, they yield a larger quantity of wool upon a given surface than that produced; and being kept much cleaner than sheep formerly were, the intrinsic weight of the wool produced by an individual is not very deficient. But from the accounts which have been preserved of the weight of the fleeces produced by the same breed in the Low-lands of Lincolnshire, and in the dryer pastures of the county of Leicester, there appears to be about half a pound in favour of the former.

The soils of Leicestershire, though somewhat various, are chiefly a rich vegetative loam, well adapted to the production of excellent long wool; but owing to the system of sheep farming adopted there, the average fleece even from the best lands cannot be reckoned at more than seven and a half pounds, and perhaps for the whole long wool of the county it may not reach seven. The quantity of stock varies in different

different parishes, from three fourths of a sheep to each acre, to a sheep and one eighth upon the same space of ground ; and if I have been fortunate in the farms from which the stock has been collected, the average for the whole county, except the Forests of Charnwood and Bardon, is about twenty one animals upon twenty two acres of land. Perhaps the computation may be deemed low by those who recollect that the stock of sheep has been estimated at one per acre by some persons, at a still higher rate by others, and by a very few at one and a half. But in such cases it is not uncommon for people to form their estimate from those farms which lie in their own immediate neighbourhood, and where only one mode of farming is adopted, without taking a general view of the district in which they reside, or recollecting that in parts remote from them another kind of sheep may be kept, and the owner profess to manage them upon other principles.

After deducting from the extent of Leicestershire the quantity of land contained in the forests, which probably amounts to about fifty thousand acres, and making the usual allowance for unproductive land, there remain about three hundred ninety eight thousand and seven hundred acres, which yield long wool; and being stocked with three hundred and eighty thousand five hundred sheep, produce more than eleven thousand packs of wool.

Northamptonshire is properly included in the district of the Dishley sheep, because that breed has become the prevailing one not only upon the rich and verdant pastures of the county, many of which may be compared with the most luxuriant plains, but has also been distributed over the dryest fallows, giving a better shape

shape and a superior fleece to their ancient stock. The uninclosed fields of this county are still numerous, and the farms are often distributed in small portions through the whole extent of the parish to which they belong; and the flocks being composed of the sheep which are kept by all the farmers, yield but a thin and ill-managed staple; much lighter than it ought to be and of a very inferior colour. In the inclosed parishes the grazier is enabled to keep a more perfect sheep, and to produce a superior sort of wool; but the defects of the Dishley fleece, which have been described already, are observed in almost every flock, and deserve the especial regard of persons who reside in a county formerly celebrated for its worsted manufactures, but where they are now almost universally declined, leaving behind them a numerous and an indolent poor. Perhaps there are few districts in the kingdom where the fleece requires more attention than Northamptonshire, for upon some of the soils it not only assumes a brown and dirty appearance, but the pile is coarse, hairy, brilliant, and hard, and possesses an undesirable portion of elasticity. One of the good effects of inclosing such kind of land, and laying it down for pasture, is the preservation of the fleece from a soil which absorbs the yolk and injures the staple. The fleeces of this county produce a large proportion of those sorts, which must be appropriated to the woollen manufacture, although sometimes shorn from the backs of animals sufficiently large to produce a different pile; and upon the borders of the county toward Rutland and Buckinghamshire, and in some other parts of it, the sheep are too small to yield a fleece suited to the operation of the comb. But as it

it is impossible to separate these two kinds of wool from each other, in the estimate which we form of the produce of this part of the island, the whole must be included among the larger fleeces, until the gross quantity of that sort of wool which the kingdom produces be ascertained. From the best accounts, which I have been able to collect, the stock of sheep is heavier than in some other districts equally fertile, and which produce a larger quantity of grass. It amounts to eight sheep upon seven acres; but perhaps if taken at that number may be rather too large, as in a few instances a common right is annexed to a farm, but not included in the measure of it. This county also contains a larger quantity of wood than some others, which probably might reduce the number of productive acres below that which we obtain by subtracting one eighth from its whole extent; but these are minute points, which fall more immediately under the view of those who reside in the district; and though they produce an error in the statement, it is not of sufficient magnitude to require a deviation from an established rule. Some of the farms in this county have been described as maintaining a sheep and a half upon every acre of land, others as supporting only one half of that number, and a few others as furnishing food for more than the double of it. A well-informed grazier, a character not uncommon there, has told me that he estimates the stock of sheep at one to every acre through Northamptonshire, and the weight of the fleeces including those of every description cannot be fairly estimated at more than six pounds; so that the produce of the county is sixteen thousand packs of wool, upon five hundred and sixty thousand productive acres, and from six hundred and forty

forty thousand sheep. In giving the average weight of the fleece at six pounds, a wool-stapler, residing almost in the center of the county, has obligingly informed me that he thinks I have stated it too high; among his more immediate connections, he does not find the sheep produce more than about five pounds of wool, and supposes that weight to answer most exactly to the fleece of the county. But as some of the richer soils certainly produce a heavier fleece than he has intimated, and since in other dubious cases we have taken the higher average, it was deemed most proper to retain that which had been procured from many other accounts.

Had Rutlandshire been surrounded by soils, which were adapted only to the fine and short-stapled wools, the produce of this small county would have been very different from what it is at present; for nothing here could have induced the farmer to cultivate a heavy fleece, but the existence of rich pastures and large sheep all around him, and the demand of an old established manufacture within the province and its neighbourhood. The land, though fertile, is in a great measure elevated and dry, and in these respects well adapted as pasture for sheep; but a considerable proportion of it being under the plough, it does not seem to be well suited to the heavy sheep of Dishley. The gentle swells of the country render it pleasing, and expose the stock of the pastures to a traveller's view much more effectually than the richer plains of Lincolnshire. It is evident upon the slightest inspection that the Bakewell blood, notwithstanding all the obstacles which it has to surmount in an arable country, has here deeply affected the stock, and perhaps greatly improved the native sheep.

sheep. Yet as no accounts of the extent and the the produce of farms have yet fallen into my hands, I can form on this subject only a general opinion founded upon the appearance and the circumstances of the country. The number of sheep, I imagine, does not exceed one hundred and fourteen thousand, upon one hundred and seventeen thousand six hundred acres of what we have called productive land. If the average fleece weigh five pounds, the whole produce of the county will amount to almost two thousand and four hundred packs of wool. The staple is of an ambiguous character; a considerable proportion of the fleeces being adapted to the worsted manufactures, another portion of them to the hose trade, and and a third part, not a small one, to the manufacture of woollens. A yellow tinge is the prevailing colour of the pile, except in the pastures whose sods produce a thick herbage, which preserves the whiteness of the wool; and upon some of the lighter soils where the exterior of the fleeces is thin and brown. The principal part of the wool which is produced in this county is supplied with a quantity of yolk sufficient to preserve the lower parts of the staple from injury; and the pile is so thickly placed upon the pelt, as to prevent those effects of water and sand, which are often discerned in a thinner fleece. Among the neglected sheep, as is usual in other places, the points of the staple are coarse and hairy.

Some who have described the rural practice of Warwickshire lead us to suppose that the sheep of Dishley did not so early affect those of that county as might have been expected. But it is observeable, that all improvements in agriculture make only a slow progress; being adopted in one farm with success, they

they are introduced into those which surround it, and thus gradually disseminate themselves until the whole district is benefited; but if obstacles are interposed, the most beneficial systems are arrested in their course, and it is often many years before they can proceed with their usual rapidity. Thus it was with the sheep of the low part of Warwickshire; the pastures where they grazed were not only situated remotely from the meadows of Dishley, but the hills of Bardon and Charnwood rose between them and interdicted agricultural intercourse, until the celebrated breed had obtained a large share of public attention, and diffufed itself over the rich soils of its native county. Before it could penetrate to the banks of the Avon, and much more before it could touch the utmost verge of the county which that river chiefly adorns, a spirit of enterprize must be introduced among the owners and the holders of land, and a taste for experimental farming must triumph over the maxims of ignorance, and defy the cynical sneer of self-opinionated folly. Hence the old rough and large-boned animals of Warwickshire, aboriginals of the soil, and which might puzzle a naturalist who attempted to class them, retained their bad qualities through a considerable period; while the more handsome and profitable sheep of Leicestershire was rapidly diffusing itself in other quarters. But rough and unsightly as the breed appeared in the eyes of a grazier, it is said to have yielded a good fleece; wool which in some instances has been pronounced fine. That term has been so miserably abused as to convey at present only a vague idea, for while the stapler almost invariably connects with it the notion of tenuity, the agriculturist and those less acquainted with wool seem as though

they wished to convey the description of a staple long, well-formed, and white; or they use it as a word synonymous with good. When applied to the wool grown upon the richer soils of Warwickshire, it meant that the fleece was large and the staple well-formed, perhaps that the colour was good; but there is no reason to suppose that the pile was smaller or would spin to a greater length than that which might be obtained from other places. At present, some of the fleeces have a tinge of redness, obtained either from the land or the taste of the farmer, and a great deal of the pile is very tender. I have seen wool of this county wrought upon the comb, which in many other parts of the kingdom, more favourably situated for the woollen manufacture, would have employed the card, and perhaps, as was then supposed, might have been wrought upon this latter instrument to the greatest advantage. But as it is some years since this circumstance was noticed, great alterations may have occurred both in the fleece, and the methods adopted to render it useful.

The wool of this county, like its surface and soil, is various. Long-stapled fleeces are chiefly found in the part of it which lies south of the Avon, and upon the border of Leicestershire. But since some of the accounts which have been published of the number of sheep are vague, and were taken before the alterations had occurred, which in most places during the last few years have succeeded each other very rapidly, we cannot repose that confidence in them, which is desirable when attempting to form a general estimate connected with a difficult subject, and one which with the best assistance must contain a great deal of uncertainty The stock of sheep however is most

most heavy in the south-eastern quarter of the county, and lightest in the point directly opposite to that. Even upon the richest soils, when compared with others of a similar description in the neighbouring counties, we cannot estimate the number of sheep at more than seven to eight acres of land. And from the best information yet obtained, I conjecture that the quantity of pasture employed in producing long-wool is about one hundred and eighty two thousand acres; that the fleece does not greatly exceed the weight of five pounds, and conclude that in the county there are a hundred and sixty thousand sheep, which produce annually about three thousand four hundred packs of combing fleeces.

It has been said that Warwickshire, which, according to Mr. Wedge as quoted by the Rev. C. Cruttwell, contains six hundred and eighteen thousand acres, has more than one fourth part of it occupied by gardens, woods, rivers, canals, roads, wastes and commons; so that perhaps one eighth of the extent may be too small a proportion to deduct from the gross amount for unproductive land; especially as in this instance there is no mention of towns or buildings of any kind. But we must not always consider land, which is usually denominated common and waste, as entirely useless in sheep farming, since it often serves as a summer pasture for a considerable number of the flocks, and thus assists the better soils in the production of wool. In this instance therefore we retain the old quantity, though possibly not quite accurate.

Wool is produced in such small quantities in that part of Staffordshire, which must be included in the Leicestershire district, as to make only a trifling error in the general calculation of the long-wool

grown in the kingdom, whether we include or neglect it entirely. Large fleeces are found chiefly upon the rich land near to the Trent, in the south-east angle of the county; and the stock which is kept there, according to the number of sheep annexed to the quantity of land in many farms, is probably not more than seven sheep upon twenty five acres. The whole quantity of land over which the heavy breed ranges, is perhaps not more than fourteen thousand; feeding three thousand seven hundred animals of that kind; and producing something more than a hundred packs of fleeces.

In this small portion of Staffordshire, it is common to sell wool by the tod of thirty pounds; in almost every other part of the Leicester and Lincoln districts, through which we have now passed, the tod of twenty eight pounds is used; and in order to accommodate the seller, a pair of seven pound weights is conveyed by the stapler to the place where the wool is to be weighed. They are usually cast in a flat form, with the arms of his Majesty upon them, and adjusted by the tower standard. For the convenience of carrying them on horseback, they are united by a thong of leather, which sometimes weighs from five to sixteen ounces. This some farmers allow to be balanced with the weights, in order to make up the tod, and actually produce a weight for their wool which varies from twenty eight pounds ten ounces to thirty pounds. The practice of using the strap, and of balancing it, is commonly defended upon the ground of old acts of parliament, which are said to allow such an extra weight, as a counterpoise to the moisture and the dirt which the fleeces contain; but at present, I believe, it rests entirely upon custom, being

being sanctioned by no law whatsoever. When the practice of using tower weights was first adopted, the design was an admirable one; for it prevented those endless disputes, which must constantly have arisen when the farmer sold his wool by hand sell, a practice now entirely laid aside in Britain. But instead of promoting justice, it has sometimes been made the means of fraud; for unless a specific bargain was made for the weight of the tod as well as for the price of the wool, the quantity sold for a given sum of money was only nominal, and was to be determined by the conscience or the policy of the buyer. In many cases, the increase of the tod to thirty pounds did not more than compensate for the trash which was often found in the fleeces; the manner of winding wool was shamefully unjust, for the bundles contained, besides dirt of different kinds, a quantity of dag-locks, of wool from dead sheep, and that which had been shorn before the staple had attained its full length, of which the ancient technical names are now almost forgotten even among staplers themselves. False winding, or the enwraping of any wool or other substance in a fleece, which does not naturally belong to it, is still cognizable by the law and punishable with a very heavy fine, to be recovered by an easy process. But farmers, at least the enlightened part of them, are guided in their commercial transactions by better principles than penal statutes afford; and the dishonest ones are soon known sufficiently to prevent any advantage accruing to them from practices, which bring the whole body into disrepute among persons, who indulge in general censure when irritated by the crimes of individuals. Buyers of wool, I am persuaded, would consult their own interest if they laid

aside all local customs, and weighed wool from the farmers upon the same broad principles that are adopted among themselves. Indeed farmers are now so much better acquainted with the principles of commerce than they were formerly, as to see the advantages resulting from an universal weight, as well as a regulated measure, and from exchanging local customs for more general manners; and I am acquainted with woolstaplers, who rejoice when their weights, the badges and the tests of honesty, are found to be useless.

The next district of long-wool is confined almost entirely to the county of Kent, and by far the larger quantity is grown near its southern extremity. The marsh of Romney may be considered as the natural pasture of those sheep, whose heavy fleeces distinguish them from all others in the southern part of the kingdom, and which have diffused themselves in small numbers over most of the other low lands in the county. Mr. Marshall thinks that the aboriginal sheep of the southern part of England proceeded from one common stock, distinguished from those of the Midland counties by the colour of the face and the horns. But the inhabitants of the marsh, like all the long-wooled sheep, which we have had occasion to notice in the plains of Lincolnshire, and the pastures of the Leicester district, are a polled breed with white faces and legs, except a few individuals generally found upon the skirts of the marsh, which display in their faces some grey spots, the sure proof of a blood contaminated by the old breed of the upland farms. The wool, which the marsh produces, is well adapted to the worsted trade; but the staple is often too much pointed and hard at the extremities, sometimes

times exhibiting on the exterior of the fleece a bluish tinge, not uncommon in wool which is produced upon low and rich pastures. Nearer to the pelt the colour is much better, and the pile partakes of that yellowness which sometimes proceeds from a rich and healthy yolk. There is also a circumstance observable in some of this wool, which I never noticed in that of any other district; the leach of the fleeces appears as though a yellow powder had been scattered among the hair, and adhered closely to the pile, producing upon the sense of feeling an impression similar to that communicated by a waxed thread. It is probably owing to the yolk assuming a concrete state, by some process at present unknown, but which deprives the pile of that brilliancy so frequently observed in the Old Lincoln breed of sheep, and also of that clear and lucid appearance for which the wool of the New Leicester is so eminently distinguished. But this is not the character of all the large fleeces of this county; by far the greater part of them possess a large quantity of nutritious and oily yolk, which through every changing season has retained its liquid form, and contributed to the health and the perfection of the staple. Nor does the yolk assuming a constipated state produce that injury to the pile which might have been expected; for notwithstanding this apparent disadvantage, it produces in the process of combing excellent workmanship, and a sliver more compact than the old wools of either the Leicester or the Lincoln district. This circumstance may be owing in part to the smaller degree of elasticity, which the wool of these marshes possesses; a quality for some particular purposes most desirable, but which is seldom attained by the grazier of the midland counties

counties without destroying that toughness, which is indispensably necessary in good combing wool. The quantity of this article produced in Kent is annually decreasing, if the assurance that the staple is growing shorter and finer be correct, and that there are few kinds of wool in which the tenuity of pile may be pursued with greater advantage. In this district, an instance occurs of the great alteration which may be produced in the stock of the country by the enterprizing spirit of its graziers, for the sheep are now described "as animals with short legs, true round barrels, of a fine size, and bearing a fleece remarkably white." But the custom which prevails of shearing the lambs must deprive the manufacturer of the advantage, which he might derive from hog wool; although it furnish some other branches of the woollen manufacture with the article which they require.

Some parts of this extensive county produce wool of an ambiguous character; such as may be wrought either by the card or the comb, as circumstances, especially the demand for the respective kinds, may direct, and render it difficult to separate the land which produces long-wool from that which yields only the shorter staple. That which is best adapted to the heavier sheep lies round the coast in various detached parts, along the southern bank of the Thames, in the isle of Sheppey, and the Weald of Kent; but the extent of it is estimated very variously, for some reckon that the marshes in the southern point contain only forty four thousand acres, while others fix upon different numbers from that even up to seventy thousand. The accounts are reconcilable only by supposing that those, who give us the higher numbers, include with the marsh

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of Romney a portion of the Weald, which joins to it, or of the low lands of Sussex, the levels of Guilford and of Pevensey. Mr. Pennant, in his tour to the Isle of Wight, mentions forty six thousand nine hundred and twenty, as the exact number of scotted acres; and his authority is certainly sufficient to guide us when estimating the quantity of stock which these marshes support. As they contain few towns, roads, or streams, and but little wood, the number of acres may be taken as a neat one.

The average of seven different accounts of the stock supported upon the fertile plains of Romney, amounts to five sheep to each acre; a quantity unparalleled in any other part of the kingdom. But as the land is appropriated almost entirely to sheep, and the lambs are most probably counted with the older part of the flock, it does not seem incredible; although a gentleman, whose writings have been already quoted, informs us that "the immense stock said to be maintained upon the land is not justified by the appearance of the fields, by the quality of the land, nor by the accounts collected upon the spot." We estimate the number of sheep at five to the acre, therefore, with less confidence than other accounts would authorize, and consider it as subject to correction. In the winter season, the quantity of stock upon these bleak and stormy plains is greatly diminished, the lambs being sent into more sheltered situations; and if surveyed at that time of the year, and the account be taken into the general estimate, the number of sheep will appear smaller than it really is, and the quantity of wool which they produce less considerable.

It is not probable that the fleece of this part of Kent

Kent weighs upon the whole more than seven pounds, although some instances are mentioned of the produce of a single sheep rising to twelve and fourteen. The weight of the fleece is certainly diminished by the custom of shearing the lambs, which so generally prevails; and this accounts in some measure for the small quantity of wool obtained from a district, which has been long celebrated for that article, both among those who grow, and those who manufacture it. From the data with which we are furnished there appears sufficient reason to conclude, that the marsh does not support a smaller number of full grown sheep than one hundred and eighty five thousand; nor produce a less quantity of wool than five thousand and four hundred packs. In calculations of this nature it is impossible to arrive at absolute certainty; but in this case the conclusion is rendered satisfactory by the opinions of some farmers, who residing upon the spot may be esteemed good judges in a case of this kind, and who reckon the quantity of wool at considerably more than twenty pounds per acre.

But these celebrated sheep, when removed to other parts of the county, produce a lighter fleece, or must be placed more thinly upon the pasture. In the Isle of Sheppey, upon the low lands near to it, and those which are found on some detached parts of the coast, the same breed of sheep produces seven pounds of wool, but the stock amounts only to five of the animals to three acres of the soil. When they crop a dryer or less luxuriant pasture, their fleeces become much more thin and light, being reduced in one instance at least to four pounds and a quarter as the average weight; a striking, but not a singular proof of the effects which hunger or excessive labour

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will produce. It is not easy to ascertain the extent of land in Kent, separate from Romney marsh, which is devoted to the support of long-woolled sheep; but it may be safely taken at twenty five thousand acres in the eastern part of the county, and at forty thousand upon the banks of the Thames, the Medway, and some other waters. They support more than a hundred and eight thousand sheep; and furnish to the manufacturer almost three thousand two hundred packs of wool. The marsh of Guilford which joins to that of Romney, and forms a part of this district is included in the number of acres which has been taken as the basis of calculation; and Pevensey level is devoted almost entirely to cattle, and furnishes so little wool that the quantity which has been stated, may be considered as the whole produce of the district.

The fleeces are disposed of here either by the pound, or the pack of two hundred and forty pounds weight, with a small allowance for waste; and it does not appear that a better mode can possibly be adopted, for the weight made use of is certain, and as well known to the seller as the buyer, and is that which staplers use among themselves throughout most of the southern parts of England. Exeter is the principal market to which the long-wool of Kent is conveyed, four thousand bags being imported into that city for the use of the manufacturers in the west of England; the remainder is purchased by the staplers of London, and finds its way to the northern looms; or perhaps a small portion of it may be wrought in those of Norfolk and Suffolk.

Having never visited that part of England which lies west of the line drawn from Bristol to Lewes, the

the description which I shall be able to give of the sheep and the fleece of the western and southern counties is chiefly collected from the accounts, which others have given of them. In Devonshire we find another district of long-wool; but confined almost entirely to the southern part of the county, although the staple through the whole is longer than most of that which is usually deemed proper for the card; but is decidedly suitable for the comb in the South Hams, and along the banks of the principal rivers. The sheep are usually distributed into two classes, the horned breed, and those which are provincially called notts, or knots; to which some add a third description distinguished from both the other kinds by a singular protubrance upon the head. Some think that they are a mongrel breed, but Mr. Marshall imagines that they belong to a distinct family. In the South Hams, a tract which penetrates far into the channel, and celebrated both for the mildness of the climate and the beauty of its scenery, the fleece resembles that which is obtained from the marsh of Romney, and is used for the same purposes in the manufactures of the county. The polled breed is said to be particularly large upon the meadows of the Ex, and especially in the neighbourhood of Tiverton; but at present in the greater part of the district, the Dorsetshire race seems to be the most fashionable stock, and derives its superior excellency from the production of early lambs. The sheep of Dishley also, which we have found in every district of long-wool, excepting that of Romney, has penetrated even to those distant pastures, and contributed to the improvement of their flocks. Like the larger sheep in other parts of the kingdom, those of Devonshire

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possess white faces and legs, except a few on the eastern side of the district, which perhaps have been mingled with the inferior breeds of the county, and display the proof of their degeneracy in the spots which they exhibit, and the dinginess of their forehead.

In this kind of wool the fleeces have been calculated at nine pounds; a few have been produced which weighed as many as eighteen; but as the pile is not usually planted very thickly upon the back of the animal, perhaps eight pounds, taken as an average, may furnish us with some accurate idea of the quantity which the district yields. It is not always customary with the farmers in the South of Devonshire to wash their flocks; and some sensible people have justified their conduct upon the ground of utility; the wool they say keeps better, weighs more, and the yolk being of a saponaceous quality assists the scouring of the pile. Yet as the practice is unknown in all the other districts which produce long-wool, even those where the carcase and the coat have been observed with the minutest attention, and cultivated with the best success; as among the shorter piles it is most commonly found in poor districts, where the land is cold or wet, and the sheep are smeared to perserve their health, where the farmers are oppressed, and husbandry ill understood, or but lately studied as a science; as instead of saving expence to the manufacturer who would fabricate articles distinguished for the purity of their colour, it furnishes more employment, and causes a larger expence; I cannot but suppose that the practice is pernicious, and indicates that the county has not made that rapid progress in the art of agriculture,

which has distinguished some other parts of the kingdom. When the value of the unwashed fleece in this part of Devonshire has been taken at seventy five, we observe that a quantity sold in a purer state reached ninety five, allowing little more than one fourth of the weight for the yolk, which incumbered the grosser fleece. There are few staplers, I am persuaded, who will not infer from this, either that the wool which had been washed was not clean, or that the quantity of yolk in which the pile had been produced was very deficient. If this deficiency arise from the constitution of the sheep it must be deemed a bad one; if it be produced by the moisture of the climate, some care should be taken to preserve the fleece from its deleterious effects, which might be more easily accomplished in a country where the myrtle sometimes flourishes unprotected through the whole winter, than in districts where the flocks are exposed to the utmost rigour of the chilling blast.

In places where the system of farming is so different, and the soils so various as in Devonshire, it is no wonder that customs should prevail in one parish, which are utterly unknown in another; accordingly we find that there is not only a diversity in the mode of treating the fleece, but that the wool is sometimes weighed by a pound of eighteen ounces, while in other places that of sixteen is mentioned. If the first be used for unwashed wool, and the other for that which has passed through the pool, it will produce a difference of one eighth in favour of the yolk, and render the deficiency of that nutritious substance less considerable than we have supposed it to be. In some few cases we have found that a pound of twenty one ounces is used, but it seems to be

be confined principally to the transactions of the master manufacturer with his spinners. The price of wool in this county is always given by the pound, but the weight made use of between the buyer and the seller is the tod of twenty eight pounds.

From the best estimate which I can form of this western district, the land supporting the larger sheep contains about three hundred and eighty seven thousand five hundred acres; the sheep amount to almost one hundred ninety four thousand, and produce six thousand four hundred and fifty packs of wool. A small quantity might be added to it, which is grown both in Somersetshire and Cornwall, but as this is too much blended with the shorter fleeces of those counties, we must pass it over without distinct calculation.

The last, the smallest, and the most singular of the districts producing long-wool is situated in Gloucestershire. The Cotteswold hills, which have been long celebrated as the spot whence the most excellent of the Spanish flocks derived their origin, are still distinguished among the eminent sheep walks of England; but if the history given of these pastures be correct, the flocks must have very greatly changed both their nature and their produce; and it is not reasonable to suppose, notwithstanding the opinion of an eminent grazier, that these lofty swells should have supported a heavy sheep at the time when agriculture was but little understood, and the country less populous than it is at present. Their larger stock was most probably introduced from the South of Warwickshire, and the North of Oxford; and the existence of such sheep upon such soils, is a surprizing circumstance. In point of elevation and general

appearances, they bear some resemblance to the Downs of Sussex and of Kent; and in the thinness of the staple of vegetable earth to the unsheltered plains of Suffolk; but they support a very different sort of sheep, and produce wool of an opposite character, showing that in the culture of the longer fleeces much more depends upon management than richness of pasture, and that if it be necessary they may be produced upon the driest hills, provided only that the flock, either by means of artificial grasses or other aliments, have its appetite satisfied and remain at ease. This likewise is the only district, except a small portion of Yorkshire, which affords long-wool from chalky hills; all other pastures in which the heavy sheep are found, are celebrated for the richness of their loams, and for the comparative depression of their surface. The moorlands of Yorkshire, the heaths of Lincoln, the forests of Leicester, the wolds of Kent, and hills of Devonshire, when raised above the common level of the country around them, support a smaller sheep though surrounded on every side by those of the heaviest description. But on the Cotteswold hills, the staple of wool is from six to eight inches long, and the fleece upon the average weighs about eight pounds; and in the vale of Gloucester are found some of the smallest breeds in the kingdom. The wool of the district, though produced in what are generally deemed unfavourable circumstances, "is strong, of a good colour, rather coarse, but of a mellow quality." The Dishley breed of sheep, which has been adopted upon these elevated farms, so different from its native pastures, has produced a handsome carcase, but a smaller and more defective fleece than that which was obtained from the native sheep. Upon such

such soils, it has been said, a large stock of sheep will be indispensable, especially while the farmers adhere to their present system; and being a region adapted to the constitution of the animal, it is not probable that sheep farming will be neglected there; indeed for many years past the stock has been perpetually increasing. It is from such general accounts compared with the circumstances of the country, and the stock which can be supported upon similar or more favourable soils, that the number of sheep must be obtained; for I have not met with a single instance in which any number of these animals is connected with a given quantity of land upon the Cotteswold hills. Perhaps one of them upon each acre is as heavy a stock as can be sustained, because the hills are not like some other pastures entirely devoted to grazing; and the flock upon an arable farm is only a secondary object with the proprietor. The district contains about two hundred thousand acres, and produces perhaps about six thousand seven hundred packs of fleeces. They are commonly weighed by the tod of twenty eight pounds: but it is more than probable, that a large proportion of them, notwithstanding what is said of the qualities of the staple, may be wrought into woollen goods by the manufactures of Oxfordshire and Gloucestershire. It is rather singular, that a district so remarkable as this should not have been more particularly described by those who have written upon rural affairs, and that the purposes for which the wool is employed should not be even hinted at.

These detached parts of the kingdom, the fleeces, of which we have described, contain almost all the sheep which produce long-wool; a few farms in other situations yield a fleece whose staple possesses

sufficient length and toughness to be wrought by means of the comb, but the quantity is too small to claim attention, unless we enter more minutely into the subject than is necessary for general purposes. The total number of this kind of fleeces, therefore which England produces, is nearly four millions two hundred thousand, from almost four millions of acres; and the weight of the wool amounts to a hundred thirty one thousand and eight hundred packs, of two hundred and forty pounds each. To this quantity of shorn fleeces must be added that portion of skin-wool suitable to the comb, which the fellmongers procure every season from the pelts of slaughtered sheep. In the View of the Agriculture of Middlesex, a work which is drawn up with great care, and published under the sanction of the Board, it is estimated that the proportion of breeding ewes to other sheep is as three to five, and that the former are killed off at the age of five years, and the latter at three. Hence it follows, that from the stock of long woolled-sheep, the slaughter amounts to nearly one million one hundred and seventy seven thousand, whose average fleece, if it had attained its complete growth, would have been rather more than seven pounds and a half, producing a quantity of wool equal to about thirty four thousand packs. But as no more can be employed in the fabrication of worsted goods than that which has attained to a considerable length of staple, and can be procured only at the latter part of the season, I suppose that the quantity pulled during the last two months before the usual time of shearing the sheep, is as much as can be safely reckoned among the long wools of England, which amounts to five thousand seven hundred packs. Yet as this includes also

also the quantity procured from sheep which die carrion, and whose wool is always too tender to be combed, we must deduct from it two hundred and eighty five packs; for it is supposed that one twentieth of what is improperly called the slaughter die in that state. We have therefore one hundred thirty seven thousand two hundred and twenty eight packs, as the grand total of English combing wool. But the whole of this quantity is not actually made into worsted goods; for besides the proportion wrought into woollens, the quantity of which we have no means of ascertaining, it contains a large portion of absolute waste, of staples which must be separated in sorting as improper for the comb, and when submitted to that instrument, produces about one-seventh of its gross weight in noils. But these are subjects belonging rather to the manufacture than the growth of fleeces, and though of intrinsic importance are foreign to our purpose.

The Short-wools of the kingdom do not arrange themselves so distinctly in districts as those of a longer staple do, but fill up the whole space besides that which has been noticed as the pasture of the heavier breeds of sheep. Those families which produce a fleece suitable to the card, though originally possessing features much more strongly characteristic than are found in the other kind, are sometimes so mingled with each other and with the sheep of the larger fleece, as to render it difficult to determine what particular race many of the individuals belong to. Yet it will be found most convenient to describe them in classes, and to proceed from that county where the species appears most pure, to those where its blood becomes intimately mingled with that of another

variety. We know not the period when any of these sheep were introduced into the country, nor whence they were procured, but there remain at present in England and Wales six different kinds of them, viz. the Norfolk, the South-Down, the Wiltshire, the Ryeland, the Heath sheep, and the Mountaineer; besides some small collections of different varieties, which seem to have descended from families now almost extinct.

The Norfolk sheep is found chiefly in the county from which it derives its name, in Suffolk, a part of Cambridgeshire, and in Essex. Individuals of this family, when their blood is pure have horns and remarkably black faces and legs. The visage is long and thin, very flat in the front, and pointed towards the extremity. The carcase is generally narrow, long and light, supported by tall and slender legs. In many respects the shape of the animal resembles that of a Deer; and it expresses both in its motions and by its eye a great degree of timidity. By blending it with sheep of another description, it appears to drop its characteristic marks very readily.

Norfolk is generally well adapted to sheep, and to the growth of good wool; for the soil is exceedingly dry, the atmosphere not loaded with such dense fogs as are common in some of the neighbouring counties, and the system of farming adopted in the numerous inclosures is well calculated to supply the stock with a sufficient quantity of nutritious food. In the western part of the county, the sheep walks are very extensive, and the animal which is placed upon them must possess a hardy constitution and active limbs, be able to collect its food from commons, upon which the vegetation is sometimes so scanty

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as scarcely to furnish a blade of grass even to the hungry rabbit. But these tracts, which some years since were reckoned at more than sixty three thousand acres, have been considerably narrowed by the spirit of agriculture, which so generally pervades this extensive county. The diminution is obvious even to an occasional passenger, who in his successive journies is gratified by remarking that land once appropriated to rabbits, or the more useful though half-starved sheep, is now employed to better purposes; and soils which once possessed scarcely tenacity enough for a warren, are now rendered capable of producing good crops of corn.

The wool produced here is short and fine; but upon the lighter soils, the fleece is so slightly attached to the animal as to be separated from it in the spring of the year with the utmost ease. Indeed a considerable portion of it is often left upon the commons, entangled among the benty grass and the few bushes which they produce, or upon the hedges of the inclosures. People are employed in collecting these scattered fragments, and though they are often very dirty and contain a great deal of trash, yet they are useful in some of the inferior parts of the woollen manufacture; but the loss which the grower sustains from this circumstance must be very considerable. Before it was usual among sheep-farmers to blend the properties of different families together, the fleece of this district was composed of filaments remarkable for the flatness of their form, and the wool has been described as possessing a larger degree of that trueness of hair, which is always esteemed a good quality by the manufacturers, than the pile of many other counties; but the fleece was not distinguished for its uniformity,

uniformity, was often infested with kemps, and abounded with grey hairs. In the course of a few years, from the attention which in this county has been paid to the sheep, the pile has undergone a great alteration. The colour of it is superior to that of the old fleece, nor do we so frequently observe in the flocks that large quantity of coarse wool which once disgraced the buttocks of the sheep. The filaments in general are finer, and retain those excellent qualities which at first procured them a distinguished regard among clothiers. At present the wool is well adapted to the manufacture of cloth, possessing a great degree of the felting quality, and but little of that elasticity which often proves hurtful in the wool of some other parts of the kingdom. It requires perhaps rather more toughness in the staple than is commonly found in the fleeces, which are shorn from the flocks of the open field, the banishment of those grey hairs which are mingled with the pile and limit its application, and the farmer who is desirous of distinguishing himself as a wool-grower will send his fleeces to market in a much purer state, free from the sand, the locks, the grass, and many other substances which too commonly injure and disgrace them. If he design the produce of his sheep for the woollen manufacture, he will avoid contaminating his flock with inferior blood, or increasing the length of the staple; but will procure a greater weight from an individual sheep, by selecting those animals whose coat is the most thickly planted, or which produce the best and most regular supply of yolk. Perhaps in this county a substitute for that valuable substance might be applied with advantage; and it is rather singular that none should be adopted among the farmers whose

whose flocks are of the most valuable kind, while those who keep only the most inferior sheep invariably use one. The combination of the Merino with the Norfolk sheep, would probably produce a richer supply of yolk, and by thickening the pile, render it less liable to be injured by the sand, which at present is always mingled with it; but I doubt whether the same advantages can be so rapidly obtained, or with an equal degree of success, by the introduction of the South-Down breed.

One circumstance, which I have met with in wool obtained from the breed of Norfolk sheep, deserves the attention both of the wool-grower and the manufacturer. In a very few instances, too few to admit of a general conclusion, the hair has been observed to be composed of a number of small fibres, lying parallel to each other, and capable of being separated almost through their whole length. This structure of the hair resembles that of a bristle, which it is well known a dexterous workman will divide into a number of component longitudinal parts. Whether this be the texture of all animal filaments I know not, but it appears a question worth the notice of the naturalist. I never could perceive it in any other kind of wool, nor in this excepting in five or six instances, although some millions of filaments have been examined with this particular object. Perhaps if it were ascertained that the texture of all wool were fibrous, the fact might not be of much importance to the manufacturer; yet it is not often that the qualities of natural substances are observed without being applicable to some useful purpose. In the few instances, in which I observed the fibrous texture of the filament, it was most visible near to the root of the hair, and

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it divided invariably from that part and proceeded towards the point.

There are not many counties, which can boast of such rapid improvement in its fleece as Norfolk has witnessed. Even in the memory of some persons not yet grown old, its wool was kempy, rough and thin. Situated out of the common rout of travellers, in an angle of the kingdom; possessing but few objects within itself to attract the notice of strangers; not many large and well frequented roads, and which center only in Norwich and in Lynn; producing also a sort of wool unsuitable to its domestic manufacture, the fleece of this district was long neglected. But the introduction of a new mode of husbandry, particularly distinguished by the name of this county, roused the attention of its farmers, and fixed it upon those general objects which are connected with their calling. By furnishing a larger supply of food for both sheep and cattle, these became objects of the first importance, and the flocks soon exhibited proofs of that laudable spirit for enterprize and experiment, which had been infused into their owners. Had this occurred when the manufactures of Norwich were in the most flourishing state, and before the taste for fine woollen cloth had taken firm possession of the public mind, it is probable that a very different race of sheep had been cultivated, at least in the richer and appropriated part of the county. But the existence of flocks producing fine wool, in the immediate neighbourhood of a manufacture which demanded a coarser pile, shows the impossibility of procuring under the old system of farming the longer-stapled fleeces from dry and thin lands. And when the fleece of Norfolk is compared with that which is produced upon

upon the Cotteswold hills, an elevated, thin and dry pasture, situated also in the neighbourhood of a manufacture requiring the finer pile; it furnishes one of those anomalies in rural affairs which often surprize us. Yet in the actual state of things, when the fleeces of this district first began to improve, the wool growers consulted their own interest when they cultivated the smaller fleeces, and have been most amply repaid for their attention; perhaps there is no other district in the kingdom whose wool has risen to more than seven times its former value, in the course of a very few years. This fact alone contains sufficient encouragement to maintain the attention of the Norfolk shepherd, to urge him to still further efforts to promote the amelioration of the fleece, until it arrive at a degree of perfection yet unknown among British wools; and to excite others, particularly in the northern parts of the kingdom, to follow his example. There are few districts, in which the circumstances connected with thegrowth of good wool are better arranged. The soil and the climate are favourable, the farms are furnished with a kind of stock whose qualities are accurately known, and it already produces in some instances a fleece of superior excellency; the land-holders also possess wealth, enterprize and intelligence, enough to insure their success. Some parts of the county, it is true, are destitute of that shelter which is always advantageous to sheep in a climate like ours, and particularly in a part of the country where the winds are unusually keen; but this inconvenience is in some measure obviated by the inclosures and plantations which are formed even upon the most desolate commons.

The wool which is grown in the division of

Marshland, and upon the low tracts which are found near to the coast, has been already included with that of the Lincoln district. There remain therefore in Norfolk rather more than one million two hundred and sixty thousand acres, which produce a smaller fleece; supporting an average stock of thirty two sheep upon fifty nine acres of land; each fleece weighing about two pounds. The whole produce is five thousand seven hundred packs of wool, from almost six hundred and eighty-four thousand sheep.

Comparing this statement with some general circumstances which are mentioned of the county, we have reason to suppose that it cannot be very erroneous. Perhaps it may be somewhat over-rated, for it has been usual to estimate the stock at half a sheep to the acre, upon the lands which have been almost entirely appropriated to their use; and in some places attention is paid to cattle as the principal stock, and the sheep are but thinly scattered over these richer farms. Yet since it is acknowledged that even the commons will maintain half a sheep of the native breed to each acre, and that the South-Down breed will thrive when a double proportion is placed upon the same quantity of land; and especially since this latter sort of sheep is very commonly introduced, it is probable that the number which has been stated as the stock of the county, is not much too high. It is also remarked, that at least thirty thousand sheep are sent out of the county every year; and this added to the internal consumption of mutton, which has been calculated at a pound and a half to each inhabitant for every week, will require a stock of sheep in the county quite

quite as large as we have supposed it to be; for the supply here is not furnished from any neighbouring district, the geographical circumstances of Norfolk render it necessary that the country should depend upon itself for sustenance. Yet I cannot conceive how the value of the wool sent out of this county should be estimated, in the year 1792, at only twenty thousand pounds. The finer fleeces are almost universally sent into Yorkshire, and I am not aware that Norfolk contains a single manufacture which requires that sort of wool. Perhaps this error (if it be one) may arise partly from the very contracted dimensions, which the gentleman who drew up the report for this county assigns to it; for he makes the extent to be almost two-fifths smaller than that which is given by some other authors, whose opinions also are confirmed by the measurement of several of the lesser maps. Upon the whole, therefore, we conclude, that though the stock of sheep which has been stated above, may be estimated too high, yet the error is not of material magnitude.

The same breed of sheep extends itself through the county of Suffolk; but there the proportion of rich loams and of clayey soil being greater, they afford a rather heavier fleece. From the best accounts which I have met with, the average may be reckoned at nearly two pounds and a half. In general the same system of farming prevails here, upon the lighter lands, as in Norfolk; but those of a stiffer quality are employed in the dairying of cows, and the stock of sheep in that part of the county is of course smaller. Upon two hundred and twenty-seven acres, there have appeared, from the account of farms which I have met with, about one hundred

and thirty eight sheep; but perhaps they were selected chiefly from that part of the county where these animals are the most numerous, for Mr. Arthur Young estimates the number very differently. Dividing the district, in his View of the agriculture of this part of the kingdom, according to its soil, he calculates that the best land supports one sheep upon five acres, the sandy part of the county one upon two acres, and the fens one on six; making a total of two hundred and forty thousand of the sheep, and eight hundred thousand of the acres. But from the data which I had obtained before that publication was procured, there seemed to be in Suffolk upon eight hundred and seventeen thousand calculable acres, a stock of more than four hundred and ninety thousand sheep, affording upwards of five thousand packs of wool. Convinced that this statement is too high, and possessing no means of correcting it but those which are obtained from the work mentioned above, and suspecting that that also is not correct, I thought it best to give both the accounts and leave them to the judgment of the reader. Mr. Young, however, confines himself too much to round numbers, estimates the quantity of land in a loose and hasty way, and makes not the smallest allowance whatever for water, roads, wood or buildings, which in such a county as Suffolk ought to furnish a large deduction. Perhaps if the mean number were taken, it might represent the stock of sheep with tolerable accuracy, but until other information be communicated, my opinion remains undecided.*

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* The difference between these two statements of the stock of Suffolk was communicated to the Secretary of the Board of Agriculture

Ever since the reign of Edward the third, the worsted manufacture has subsisted in Suffolk, and employed a great proportion of its inhabitants; yet the county has not yielded the wool suitable to its own consumption, although it includes a quantity of land upon which the heavier kind of sheep might have been supported. This may be considered as another instance of the slow progress which agriculture made in improvement, so long as farmers contented themselves with following the example of their forefathers, and did not examine whether the principles upon which they proceeded were such as reason and science could justify. Through several centuries it seems to have been thought more easy to import the wools of Lincolnshire into Suffolk, than to produce an alteration in the stock of the county; and no individual arose among farmers, who had knowledge or resolution enough to adopt a different system from that of his brethren. But the worsted manufacture in this county is now so greatly declined, and the demand for smaller fleeces so much increased, that it is probable the staple produced in this part of the kingdom, will differ still more widely from that which is manufactured there.

Passing from hence into Cambridgeshire, we observe traces of the same breed of sheep; but its characteristic marks are blended with those of the neighbouring districts, and the animal is greatly debased. The old sheep in the higher parts of this county, was an ill-formed and half-starved creature,

Agriculture some months since, and from his acquaintance with the county, it was hoped that the errors of both might have been corrected.

with some black spots upon its face and legs, and producing grey hairs amongst its wool. The pile was much longer and more coarse than the wool of the pure Norfolk breed, was often very much pointed at the extremity of the staple, and destitute of wool in the lower part of it. Nor were the proprietors of the sheep more solicitous to display a well-managed fleece, than to exhibit the most approved qualities in the carcass; for the wool was generally washed with little care, incumbered with a great deal of yolk, pitch, and other filthy substances, and the brand, which always destroys the staples upon which it is imprinted, was commonly found on the most valuable part of the fleece. Indeed there are not many districts in the south of England, where the shepherds appeared to be more ignorant or more slovenly in their mode of preserving the fleece. But the spirit of improvement has reached even these dreary fields, has roused the attention of persons, in whose manners the simplicity of the ancient shepherd is more conspicuous than in most other places, and induced them to cultivate the purer breed of Norfolk. Formerly this kind of sheep was confined to the eastern part of the county, and almost to the border of Suffolk; while in the more distant parishes the flocks were composed of animals, in whose features, form, and fleece, the qualities of an inferior blood were distinctly visible. Those of the Wiltshire breed were especially conspicuous in the southern and central parts; and have doubtless been introduced there by that long range of chalky swells, which we shall have occasion to trace even from Dorchester to the eastern marshes. In the upland part of Cambridgeshire, the number of sheep

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is greatly diminished by the inclosures, which have been but lately set out, and promise ultimately to adorn and improve this naked and inferior region, although at present they may be attended with many inconveniences. When the fences have attained that degree of firmness, which will admit the return of sheep, the proprietors of the land will probably be solicitous to obtain a larger race than that which they formerly possessed; but it will be advantageous to the country, perhaps to themselves also, if they cultivate the finer sorts of wool. At present the stock upon the dryer lands of this county cannot be reckoned at more than one sheep to four acres, but perhaps in a few years it will be much more numerous. From some of the fields these animals are almost banished; and a gentleman, whose opinion was noticed when we described the long wool of this county, assured me that in the immediate neighbourhood of Cambridge, the produce of wool was not one hundredth part of the quantity which was obtained a few years since. The average fleece is something less than four pounds, and the number of sheep on one hundred and eighty seven thousand acres is almost forty seven thousand; which, together with the twenty one thousand producing small wool from the fens of the county, yield about eleven hundred and twenty packs of wool. The upland soils in this county are well adapted to sheep, being dry and warm; and the climate is less infested with fogs than might have been expected in a district so near to the marshes. Even in their neglected state, the sheep produce a fleece well furnished with yellow yolk, and which does not seem to have been diminished by the absorbent quality of the soil even upon the chalky

chalky land. I confess that though formerly suspicious that the wool grown in the south-eastern part of Cambridgeshire would be destitute of the felting property, I have never either from experiment or information had that suspicion confirmed, but have some reason to think it utterly groundless. Perhaps the fleece may be preserved from the pernicious influence of the chalk by that thin stratum of gravelly soil, with which this tract is almost universally covered.

But Cambridgeshire is not the only county in this part of England which contains sheep of indefinite or mingled features; we find them in every one of those which surround what may be called, with some impropriety of expression, the Norfolk district; and though the flocks in some cases may exhibit no traces of the black-faced, or even of the horned variety, we shall find it more advantageous to speak of them now, than when describing any other family of the English sheep.

A considerable part of Huntingdonshire has been included in the districts which produce long wool, and a general description of the soil, of the flocks, and of their fleece has been given. It will be only necessary therefore to observe in this place that the smaller sheep derive a part of their qualities from those of Cambridgeshire, but blend them more intimately with the properties of the kinds cultivated in the richer pastures, for the advantage of the worsted manufactures, in proportion as we approach to the districts in which they prevail; and that the same small kind which is commonly found in the south of the county, and on the border of Cambridgeshire, becomes more intimately blended with a heavier

heavier sort, but bearing a staple only of medium length, as we approach the county of Bedford. The quantity of land, which produces small wool in Huntingdonshire, is about one hundred and forty four thousand acres, exclusive of the usual deductions; which support, perhaps, nearly three-fourths of a sheep per acre, and afford from one hundred and eight thousand animals, about two thousand packs of wool; each fleece weighing almost four pounds and a half.

Bedfordshire contains a greater variety of soils than most other counties of the same extent, and produces upon each of them a different fleece. In the northern part we meet with a stiff and cold clay, which declines as we approach the Ouse into a gravelly loam. To this succeeds a ridge of dry sandy hills of a loose texture, and which produce but little corn or wool. Along the southern border is a part of that long tract of chalky land, which has been already noticed in Cambridgeshire. On the western side of the county, it was not uncommon for the farmers to have a flock of sheep from a distance, whose proprietor and shepherd attended them hither in the summer season, folded them upon the lands of his master, and as the winter approached, withdrew them from a spot ill adapted to their constitution. The sheep, which composed these travelling flocks, were small and hardy, produced in general a lighter fleece than those which remained in the country, though often very thin and dirty. Upon the stronger soils the fleece is rather heavy; the sheep which produces it of a more valuable kind than that which is supported upon the uninclosed commons, and if the pasture be covered with

with an herbage sufficient to prevent the intermixture of the soil with the wool, the colour of the pile is exceedingly good. The sandy tract which, like others of a different description, passes through the county almost from East to West, is capable of supporting only a lean and diminutive sheep, whose coat is often very inferior, short stapled, and hairy about the breech; light, but not fine; and though produced upon a dry and healthy pasture, destitute of yolk. On the southern hills, the staple is rather longer than the breed of sheep which produces it generally affords, and indicates by its sickly hue the absence of one essential quality of good clothing wool. By far the greater part of the pile grown in this county has a yellow tinge, is commonly too long for the card, but seldom possesses that degree of toughness which would fit it for the fabrication of worsted goods, although a portion is sent to the stocking manufacturers and for their purpose it is often well adapted. Possessing less elasticity than the fleece of some parts of Northamptonshire, that portion of it, which must be wrought into woollen cloth, will produce an article not of the most inferior quality. A small part of the produce is consumed in the county, but by far the greater proportion is sent out of it in an unwrought state, and serves to employ the poor of distant places. The influence and the example of the late patriotic Duke of Bedford has certainly improved the country in the immediate neighbourhood of Wooburn Abbey, but in the remoter parts of the district agriculture seems not to have made a rapid progress. Something has been done of late years to promote the benefit of the farmer by inclosing the open fields, and to insure the advantage of the

the land-owner by planting. But the same spirit of enterprise does not seem to pervade this county which has been observed in some others, situated more remotely from the scene and the centre of philosophic husbandry. In the inclosures the sheep have decreased in number, but their produce of wool weighs heavier than it did when more numerous flocks wandered promiscuously over the same extent of land. The wool, it must be regretted, is of that kind which is least wanted, and which might be produced upon pastures not so well adapted to the growth of a finer staple. In every instance where land naturally suitable to sheep, which produce a fleece of the finest description, is employed in the support of one which yields coarser wool, whatever advantage an individual farmer may procure to himself, the community is certainly a loser. The quantity of stock, as it is collected from the different accounts which have been given of it, amounts to ninety two sheep upon ninety seven acres, but as the farms from whence it is obtained were chiefly those of the better kind, and since a large proportion of the county is evidently incapable of supporting a stock so numerous, if allowed to correct this average by my own unsupported opinion, I should deduct from it one-fifth of the number of sheep; leaving two hundred and four thousand as the probable stock of animals of that kind, which graze upon nearly two hundred and sixty nine thousand acres, and produce an average fleece of almost five pounds, or about four thousand packs of wool.

From the native sheep of Essex, which are now almost if not entirely unknown in the county, a fleece of long and coarse wool was obtained, usually weighing

weighing about four pounds. Instead of its ancient stock, that part of the country now pastures the breeds of sheep which derive their origin and their names from Wiltshire, the South-Downs, Norfolk, Dorsetshire and Wales. The Dishley race has diffused itself around the coast, and has sometimes without judgment been placed upon the commons, contributing with other circumstances to spoil the wool of those flocks which it found there. But the farmers seem to be now convinced that this breed is ill adapted to such pastures, and to the neglect with which the sheep upon them are often treated. The white-faced Wiltshire, a more hardy family, distinguished by the scantiness of its coat, occupies the north-western part of the county; and the Norfolk race is the most prevailing one on the border of Suffolk. Upon Epping forest, in the farms near to it, and on the numerous commons with which this county abounds, the breed of Wales is chiefly distinguished. But the sheep known by that name in Essex have little claim to the appellation. They are indeed light mountain animals, with some features which resemble the stock of the Principallity; but their blood is mingled with that of many other families. The wool produced by them is often coarse, short and kempy; yet when they are attended with more than usual care, the fleece is fine, pliable and soft, possessing some of the best qualities of clothing wool. The black-faced family of Norfolk, which was formerly numerous in this eastern division of England, is losing ground very fast; and the South-Down race occupies its pastures. It has been introduced, and spread through a large part of the district, by the influence of gentlemen,

men, who first reared them in their parks, and with praise-worthy exertion convinced their tenants of the superior advantages to be derived from the cultivation of such a stock. Here, as in their native county, the Norfolk sheep yield about two pounds of wool; those of the South Down breed nearly three; and the descendants from the Wiltshire blood about three and a quarter. There are but few of the Dorsetshire sheep in Essex, and the breed of Dishley is now almost confined to the marshes of the county. No accurate accounts have been given of the stock of this part of the kingdom, but it is almost uniformly represented as a light one; and placed very irregularly upon the soil, a circumstance frequently observed in districts where sheep-farming does not constitute one of the chief objects of the landholders attention. If we estimate the number of sheep, as it appears from an average of eight accounts, at two upon three acres of land; and the average fleece at three pounds, the result will be amply sufficient to include all the wool of the county. The number of calculable acres being nearly seven hundred and seventy eight thousand; that of the sheep amounts to five hundred and nineteen thousand; and the quantity of wool to almost six thousand five hundred packs.

Several of the preceding particulars were furnished by a gentleman, who for many years has purchased wool in different parts of the county; and the very handsome manner in which he communicated them conferred an obligation, which requires my public acknowledgment. But when assured "that he finds no data upon which to found a calculation of the quantity of stock," it may be

deemed presumptious in me perhaps to state even a conjecture respecting it.

The soil of Essex is certainly well adapted to the constitution of sheep, and to the growth of a valuable wool; being for the most part dry, and free from a light sand, or a cretous surface. It is generally an inclosed and well sheltered county, and can boast of a mild and genial atmosphere.

In the district, which, with some impropriety of language, may be denominated that of the Norfolk sheep, wool is often sold by the pound; in some parts of it by the tod of twenty eight, and in others of twenty nine pounds; but there seems through the whole a disposition to lay aside local customs, and to adopt those of a more general nature. The use of the strap, which has been described before, is not always dispensed with; but many farmers complain of it, and are disposed to adopt a new method of weighing their wool, one which is calculated to destroy all ambiguity in the tod which they make use of. Through almost every part of this district the native sheep is acknowledged to be a bad one, and is gradually giving way to superior breeds. In the counties of Bedford, Huntingdon and Cambridge, the wool-growers are desirous to obtain a heavier race; and even in Norfolk itself, the distinguishing excellency of the South-Down variety is strongly pleaded for, as ascertained by actual experiment, and some of its advocates are sanguine enough to expect, that in a few years it will be the only wool bearing stock of the county.

The sheep which we have had occasion to notice as the favourite breed, even in one part of the Norfolk district, takes its name from a long range of chalky hills,

hills, which passing from the general bed of that kind of earth in the southern part of England, enters the county of Sussex on the west, and runs through it almost in a direct line, until it meets the sea, near to East Bourne. This range of hills, extending in the county almost fifty miles, is of considerable elevation, destitute of inclosures, and contains a succession of open Downs, distinguished by their situation and name from a more northern tract of similar soil and elevation, which passes through Surry and Kent, terminating in the rocks of the Forelands and the celebrated cliff of Dover. It was upon these South-Downs that the sheep of that name were first cultivated with success; and hence they sent out those colonies, which are gradually producing an alteration in the short-wooled sheep of the surrounding counties, and of some distant parts of England. But they have not yet, like the Dishley breed, supplanted any race of the native sheep of those countries where they have been introduced; for they still subsist only as foreigners, and exhibit to shepherds their properties and their produce as objects of comparison, confident that when tried their superior value will be obvious to all. The animal, though its size place it among the smaller breeds of sheep, and though its wool be short and fine, has no horns; its face and legs are grey, and its limbs are not very long; its head and upper part of the neck is thick, and appears heavy; and the pile is planted very closely upon the pelt. This kind of sheep, though greatly altered by management, is supposed to have descended with unmixed blood from the original stock which at a very early period diffused itself

over the southern parts of England, even from the eastern shore to the extreme point of Cornwall.

In the fleeces of the South-Down sheep we have observed a great want of uniformity. That part of them which grew upon the back of the animal, often differs very considerably from the produce of the sides and shoulders; and the breech becomes suddenly coarse, being larger also than might have been expected from sheep bearing such fine wool, and grazing in the neighbourhood of the oldest manufactures. Sometimes the pile is not so uniform in itself as the clothier wishes it to be, but contains a number of those coarse and long hairs, which have been described in another part of this work, as giving the fleece a bearded appearance, and proving hurtful to the cloth. The zeal, however, with which the shepherds of these parts pursue the improvement of their flocks, may have produced a great alteration in the qualities of the fleece, since the time when I was more accustomed to this kind of wool, than at present, and doubtless, under their superintendance, attempts will be made to remedy every known defect.

Upon the Downs grazing of sheep is the chief object among farmers, and the condition of their flocks is uniformly represented as excellent. In the less elevated parts of the county these useful quadrupeds exhibit symptoms of neglect. They are rougher animals, bear a much less valuable fleece, and in accounts which have been published of the rural concerns of Sussex, are often passed over in silence, or but slightly mentioned, while the good qualities of the other breed are repeatedly described. In this county we find the native stock

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of Hampshire, and also that which derives the peculiarities of its nature from the race which abounds most upon the plains of Dorchester. Upon the level tract, near to Pevensey, a breed is found of a heavier description such as was noticed upon the marshes of Romney; but the sheep of this kind are few in number, and their produce of wool has been included with that of Kent.

Among the soils of Sussex, that long tract of chalk, which has been mentioned as the native pasture of the South-Down breed of sheep, is most noticed by the woolstaplers and clothiers; some of whom, unacquainted with this part of the kingdom, are surprized, when informed that it contains a quantity of rich fertile land, varying from a stiff clay to light and barren sand, and that the extent of the chalk is not more than one fourth part of the whole. Upon the variety of soils, the quantity of stock which is maintained, is very different. The chalk, with the assistance which it derives from winter food procured in the vale, supports a large number of sheep; and the country about Petworth, and along the coast, seems to bear a heavy stock of the Dorsetshire breed, kept here, as well as in other places, principally on account of its early lambs; but farther to the north few sheep are observed except upon the commons, which are numerous and sometimes extensive.

In this district it is usual to shear the lambs; the quantity of wool produced by each is commonly about eight ounces, but in some years amounts to considerably more, and in others falls short of it. The fleeces also of the full-grown sheep, produced at two different seasons of shearing, vary in their

weight. If compleat dependence may be placed upon the returns of wool made to the custom-houses on the coast, the parcel entered by the same person, containing an equal number of fleeces, and most probably produced by the same flock, and upon the same land, in different years has varied full one seventh of its weight. If the flocks of other parts of the kingdom afford in different years fleeces so dissimilar in their weight, the total produce of the country must sometimes vary to a degree, which has not been commonly supposed. There is indeed scarcely any part of the island where the produce of wool, like that of most other substances, has not been served to be sometimes plentiful, and at others scanty. It would be useful to ascertain the causes upon which the variation depends, and the extremes between which it vibrates.

Upon the South-Downs, the sheep produce about two pounds of wool. Perhaps the average fleece is not heavier, although the entries at the custom-houses make it about two pounds five ounces. But it should be recollected, that no distinction is made there of the farms upon which the fleeces were grown, and in the less elevated parts of Sussex, and upon the stiffer soils, each sheep furnishes three pounds at least. This we shall consider as the average produce of that part of the county.

The quantity of land occupied by the South-Down flocks must be taken at something more than the extent of the chalky hills, for in the winter season they derive a part of their support from the richer soils. A gentleman well acquainted with the district has computed that the extent of their pasture is about sixty miles long, and from five to six

six broad, supporting a stock of three sheep to two acres. In some parts of the range, particularly towards the east, it cannot be lighter than two sheep upon every acre; but from the banks of the Adur westward, to the extremity of the county, it scarcely exceeds one upon the same quantity of ground. From these data therefore, confirmed by many accounts, the land appropriated to this kind of sheep, may be estimated at two hundred and eleven thousand two hundred acres, the stock at three hundred sixteen thousand eight hundred sheep, and the wool at two thousand six hundred and forty packs. In the other parts of Sussex, after deducting from their general extent the level of Pevensey, the number of sheep seems to amount to nearly one hundred and fourteen upon a hundred and five acres. But this general average is evidently too large for many parts of the county, and has been affected by the descriptions of those places, where the system of sheep-breeding is adopted in preference to any other mode of occupying land. Making some allowance therefore for the sandy tract upon the northern verge of the county, and for the forests of Saint Leonard and Ashdown, where the stock of wool-bearing animals is light, we compute that six thousand eight hundred packs of wool are produced by almost six hundred and twenty four thousand acres, and five hundred and forty seven thousand sheep.

Of this quantity of wool a considerable proportion ultimately reaches the manufactures of Yorkshire. Probably those of the West of England may derive from hence part of their supply, as the vicinity of the looms, the nature of their productions,

tions, and the qualities of the fleece produced upon the Downs, invite a connection between the clothiers of Wiltshire, and the wool-growers of Sussex. But we have no means of tracing with c curacy the destination of the whole produce of the county. Among those who manufacture the thicker kind of coloured cloth, a strong prejudice prevails against the South-Down wool, because it is generally found to be destitute of that felting quality, which is absolutely necessary to the perfection of those articles which they commonly fabricate, and although convinced that this deficiency in goodness is to be attributed to the influence of a chalky soil, and assured that land of that description does not extend through more than one third of the county, and that the soil of other parts is favourable to the production of a fleece distinguished for superior excellency, yet the clothier has heard so much of the South-Downs of Sussex, and has so often suffered by misapplying their fleece, that he feels jealous of all the wool produced in the county. It is unfortunate that the name of its native pasture should have been retained by that species of the sheep, which was first fostered here, when removed to other parts of the kingdom ; since it has rendered many of the wool buyers suspicious lest the fleece produced by it should retain its peculiar defect, even at a distance from the Downs, and though placed upon a soil materially different from that which originally supported it. Some who have the interest of the country at heart, have been apprehensive lest it should communicate the peculiar tenderness of its pile to some of the most approved wool of the island. The introduction of the Merino family upon some parts of these

these celebrated pastures, so favourable to sheep, but so much the object of dread to one class of clothiers, will shortly ascertain whether the defect in the wool arise wholly from the soil, or partly from the constitution of the animal, whether it may be counteracted by the production of a larger supply of yolk and a closer coat, the natural effects of a combination with the Spanish race, or whether the intermixture of absorbent earths with the growing pile, will convert the best kind of fleeces into an imperfect staple, and destroy one of the most distinctive qualities of wool.

Here, as in the eastern parts of the kingdom, fleeces are weighed by the tod; but in Sussex it has been raised to thirty two pounds instead of twenty eight, the original number, and that which is adopted through every district of long wool. England has derived from Flanders many of the technical terms, which the clothier and the stapler adopt, and some of the customs which prevail in their respective branches of trade; but it is in the south-eastern quarter that these betray their origin most strongly, and indicate, as might have been expected, a closer connection between that part of the island, and the ancient seat of the woollen manufacture. It is in these parts alone that the tod is used, and perhaps the advance in different places, from twenty eight to twenty nine thirty and thirty two pounds, might arise from some local circumstances which are now entirely forgotten. But as this weight is not applied to in ascertaining the quantity of lamb's wool, it is probable, that the practice of shearing those tender animals was not adopted until after the permanent establishment of the woollen manufacture in

in England. The quantity of this kind of wool which is now procured in Sussex, if we suppose that the whole produce is collected, amounts to about six hundred and thirty packs, reckoning that the number of lambs is generally about one third of the old sheep, and that the proportion of the slaughter is as one to five.

When describing the wool of Romney marsh, a general account was given of the native sheep of Kent, and of their fleeces, which it is not necessary to repeat. Both those which have been placed upon the richer lands, and those which have grazed a more elevated and a dryer pasture, being derived from the same stock, exhibit nearly the same distinctive marks in their carcase, and in their wool. Yet, in the higher parts of the county, the native animals have long since admitted into the same fold the peculiar breed of Wiltshire, which has been very generally diffused through the country, and that of Dorset, favoured among those who supply the London market with lamb, because they produce their young at an earlier period than most animals of the same kind. But the South-Down race, valuable on account of its close feeding, its well formed carcase, and its superior coat, is at present esteemed, and makes rapid progress. At some future period, if it supplant not the natural stock, it may so alter it as to procure a form and a fleece nearly resembling those of Sussex.

The county of Kent displays a great variety in its soils, which, though commonly resting upon a substratum of chalk, are usually thick enough to preserve the fleece from the pernicious influence of cretous earth. This substance abounds most in the

the northern and eastern parts, and in some places gives them the appearance of sterility, but generally requires a large stock of sheep. Toward the south is an extensive tract of rich and fertile land, now improperly denominated the Weald of Kent, where the clayey soil is well adapted to the production of wood and of heavy animals, and is more devoted to oxen than to sheep. In the western quarter there is a greater variety of husbandry, and a more happy mixture of pasture and ploughed land. In the middle of the county but few sheep are observed during the summer months; but in the winter season the fields are thickly set with the young stock, which is sent to these milder regions from the more exposed and boisterous climate of Romney marsh; and in the western corner, the enclosed lands, owing to the vicinity of London, are too valuable to be employed as sheep pastures. Under these circumstances we cannot expect that the stock of the county can amount to more than four hundred and five sheep, upon five hundred and sixty two acres; but the introduction of a better breed than that of the old upland farms, and the neighbourhood of the first market in the kingdom, encourage extraordinary attention to this serviceable animal. The wool of the county is purchased by the pound, and finds its principal demand in London. It is sent chiefly to the northern manufactures; and amounts to about seven thousand packs, shorn from almost five hundred and twenty four thousand five hundred sheep; supported by seven hundred and twenty eight thousand acres of land. Each full-grown sheep is estimated to produce three and a quarter pounds of wool; and the lambs, which here also are stripped

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of their coat during the first year, furnish each about eight ounces. But the system of sheep farming, which in many places has for its object the rearing of lambs for slaughter rather than for stock, does not allow the whole number to be considered as producing wool.

The introduction of South-Down sheep into Hampshire, and the ready reception they meet with there, has induced me to place that county within the district, which may be considered as their more appropriate pasture. The original stock was very different from that which derives its blood from the Downs of Sussex, and from that rougher sheep, which Mr. Marshall thinks was the original stock of the southern counties. The natives of Hampshire had most commonly white faces and legs, which became speckled only when their blood was mingled with that of some more dingy breed. They had horns, long limbs, and the carcase was light and narrow. Almost every part of this description would lead us to suppose, that these old sheep belonged to a family of very singular character, which we shall have occasion to notice, when describing the wool of Wiltshire, and which perhaps ought to be a sufficient reason for including them with those of another district. In their improved form, which seems to have been effected in some measure by the judicious selection of rams from the same stock, and by spirited experiments which have been conducted upon a large scale, the length of the legs has been reduced, and the carcase rendered rounder and more compact, while in other respects they retain their old characteristics. But in those instances where they have been coupled with the Sussex breed

breed, and which seems to be the mode of improvement most commonly adopted, the progeny resembles more exactly that of the South-Downs. This latter breed is found to thrive upon harder fare, and produces a finer fleece than the original stock, and in a county possessing a large quantity of dry and elevated pasture, situated near to extensive manufactures, and including within itself the scite of the first woollen loom wrought in Britain, this breed may expect to be adopted with a superior degree of judgment and success, and with a nobler spirit of enterprize. Formerly the wool of Hampshire was of inferior quality, but as is generally the case, attention to the carcase has produced a casual but very important effect upon the fleece. That wool which is grown upon the forest land, (a term which seems to be used provincially, and to denote uninclosed common land less elevated, or differing in soil from the Downs) is described by an elderly stapler as "fine, but filthy and full of sand; that upon the Downs is larger and more harsh, and upon the arable land it is harder and harsher still." Probably one part of the alteration which is allowed to have taken place in the fleece, produced in this part of the kingdom, may consist in rendering it more soft and mellow. From some circumstances mentioned in rural descriptions of Hampshire, and from the manufactures of the county, it seems to produce some long wool; but in quantities too small, and too much intermingled with the shorter kind, to admit of a separate estimate. The quality of its fleece in general is described as holding the middle place between that of Wiltshire, which is better, and that of Dorset, which is worse. In weighing the produce of the

sheep the tod is used, but varies from twenty eight to thirty one pounds. The latter is the most common one, and perhaps that of twenty nine pounds is the least so.

In this division of the kingdom, the stock of sheep placed upon a certain number of acres, varies considerably; a circumstance easily accounted for when we observe the soils and local situation, which must always preclude uniformity in the mode and object of farming. Toward the North, the land is deep and good. A broad tract of chalky Downs, continued from those of Sussex, and similar to them in elevation and general appearance, passes from East to West through the centre of the county, and joins to land of the same description in Wiltshire. Descending toward the South, the country becomes more fertile and woody, but owing to the numerous large bays which indent its coast, the atmosphere is moist and ill adapted to the constitution of sheep. The Downs, although usually described as chalky land, are said to have for their surface a thin stratum of another soil, but having never visited this part of Hampshire, nor seen the wool which it produces, I am not able to say whether it affords a fleece furnished with that felting quality, which is always essential to prime clothing wool.

If we estimate the extent of Hampshire, exclusive of the Isle of Wight, and deduct one eighth for the land occupied by wood, buildings, and public roads, we have seven hundred and seventy five thousand acres, with a stock, calculated I hope with some degree of accuracy, at two sheep upon three of them. The animals each yield about three pounds of

of wool, and furnish as their total produce almost six thousand five hundred packs, amounting themselves to nearly five hundred and seventeen thousand. But perhaps we ought to deduct more than one eighth from the general extent of Hampshire, owing to its forests, and the very large quantity of water which is found on its southern border. In that case the number of sheep would agree more exactly with another account, which states them in a round sum, at three hundred and fifty thousand, but without any circumstances to confirm, and with some which render the statement suspicious. One part of the wool grown here probably furnishes a supply to the western manufactures, another portion most certainly reaches the northern ones.

Among the rural scenes and well cultivated pastures of the Isle of Wight sheep graze, which are similar to those of the native breed of Hampshire, lank and unsightly animals. The appearance of the flock is mended by some individuals of the Wiltshire and Dorset breeds, but will most probably derive its best improvement from the introduction of the South-Down variety, which to use the simile of an agricultural traveller, appear among the natives as the proud and well-combed steed of Arabia, among a herd of the the most humble and stupid of animals. The South-Down sheep produces here as good wool as upon its native soil, and the ridge of hills which passes from east to west, and verges considerably toward the southern part of the island, furnishes a pasture not widely different from the elevated parts of Sussex. Upon the farms which include a portion of the Downs' sheep, as is commonly the case, yield a lighter fleece than that which is obtained from the

flocks whose pasture is confined to the more level plains; and a larger quantity of wool is procured also from the animals which graze in the western part of the country, than from those which are maintained near to the eastern angle. The former afford a fleece whose weight is estimated at three pounds and a half, while the latter furnish only about three pounds of wool. Upon the less fertile soils the quantity of stock is about six sheep to five acres of land; but upon the richer farms, which are not entirely appropriated to sheep, it amounts only to one animal upon two acres. It is not possible to estimate the extent of the upland pasture alone, with that minute exactness which is always desirable; but perhaps we shall not be far from the truth, if conjecturing that it comprises about one third part of the island, we calculate that the whole of it supports about sixty one thousand sheep, produces nearly eight hundred packs of wool, and furnishes them from eighty seven thousand five hundred productive acres. The wool after been weighed by a tod of twenty nine pounds, is sent out of the island, and most probably has the same ultimate destination as that of Hampshire in general. It has sometimes been supposed that the quantity of wool grown in the island, is not so large as we have reckoned it. The number of sheep has been stated at thirty thousand, of lambs at eight thousand; and some other accounts have given forty thousand as the total amount of both.

In Surry, the last county to be included in the south-eastern district of short wool, the soil is less various than in many other parts of the kingdom. The interior of the county is chalky, dry and barren, and

and contains large tracts of sandy heath, which produce but little food for sheep or other quadrupeds. About ninety six thousand acres are of this description; and if we deduct any thing for the near neighbourhood of London, which always prevents attention to sheep farming upon the richer soils, it may safely be supposed that one fourth part of Surry produces as little wool as a similar space of ground does when selected from some of the widely extended heaths of the North of England. At a greater distance from the metropolis, the Dorsetshire sheep are cultivated, and early lambs are reared, perhaps in greater numbers than in most other districts. The old native sheep, still found upon the heaths, are a branch of that family which has so often been mentioned as the native stock of these southern counties. From the better pastures it has been expelled, not only by the Dorset, but by the superior breeds of Wiltshire, and of Sussex, each of which produces here a fleece resembling that which is shorn from the inhabitants of its native pastures. The wool of Bansted Downs has been represented "as short, thick and close, while that of the other heaths is longer, but more soft, coarse, dirty" (ill managed) "and very full of sand;" it is often distinguished by a dingy hue acquired from the soil, and possesses some of the best qualities of a fleece. Upon the more tenacious land, the stock amounts to nearly five sheep on six acres; or two hundred and seventy three thousand fleeces are produced from three hundred and twenty seven thousand acres of calculable land. And if we add to this the stock of the heaths, which may amount to about ten thousand sheep, and take the average fleece at three pounds, the

produce of the county is something more than three thousand five hundred packs of wool. The greater part of it being sent to the London market, is ultimately consigned to the manufacturers of Yorkshire and of Lancashire.

Wiltshire introduces us into a new district of short wool, where a sheep is found, which differs very widely in its features and fleece from those which have hitherto attracted our attention. Here the native flocks are composed of horned animals, with perfectly white faces and legs, a flat untufted front, a light and long carcase, which produces no wool upon the belly and lower part of the breast, and these sheep, by their tallness and short stapled-fleece, are qualified to obtain food from dry soils and widely extended pastures.

Nature, and the modes of husbandry adopted in Wiltshire, divide the county into two parts. The South-eastern division is distinguished by an amazing extent of high and chalky land, where open Downs succeed each other, and to the tired eye of a stranger appear dry, cold and comfortless. Yet here the reflecting traveller will notice the features and the soil of the country, the immense swells of cretous earth, which seem the general deposit of that substance, which forms so distinguishing a characteristic of the southern part of Britain. He will observe, that though ill adapted for the habitation of man, the wilds are every where traversed by numerous flocks of sheep, attended by their solitary and unsocial conductors, and evince that the driest wastes, by human industry, may be rendered productive. Monuments of ancient transactions will recall to his recollection the manners, the taste,

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the turmoils, and the superstition of former times; but upon the Downs of Marlborough, and the Plains of Salisbury, he must expect no pleasure from rural scenes, for he will observe neither the secluded dell, nor the meandring brook, the verdant mead, nor well-planted coppice, the seat of easy affluence, nor the humbler dwelling of contented labour. In the lower parts of the district indeed, he will be delighted with the pursuits of husbandry, the patience of manufacture, and the bustle of trade. It is from this singular part of the kingdom, we repeat, that the three loftiest and most naked ridges of the south-eastern quarter proceed, and regulate the system of agriculture in the counties through which they pass; the first of these chalky tracts, after intersecting Hampshire and Sussex, terminates at Beachy-Head; the second extends to the eastern shore of Kent; and the third, after conveying the Wiltshire breed of sheep even to Cambridgeshire, loses itself beneath the sands of Suffolk.

The management of the flock is well understood in Wiltshire, and the animals which compose it exhibit, both in their structure and habitudes, evidences of great attention in their owners. Here the farms required an animal light and active, able to pass without injury over a large space in little time, to climb without difficulty the most abrupt steeps of a billowy district, to endure the heat of the summer sun without a shelter, and to subsist upon the herbage which it could crop from the driest Downs. As the fold is the chief object for which flocks in this district are kept, they must travel far at morning and evening, to their pasture and their lodgment. For circumstances like these, every one who observes the

the Wiltshire breed of sheep, will find it well adapted both in its structure, disposition, and lightness of fleece. As they are objects of prime importance in the system of husbandry which prevails here, every farmer supports a large number. Those which subsist in the chalky division have been estimated, with their lambs, at five hundred thousand; but the calculation is an old one, and the basis upon which it is founded loose and unsatisfactory. Another account supposes that the same district supports a sheep and three fourths per acre; but perhaps, as is too commonly the case, it estimates the farm, without considering the advantage derived from a common right; or the acre to which it refers may be a computed one, and considerably larger than the statute measure. It is said that the number is smaller now than it formerly was; but the South-Down breed, a hardy animal, and one which allows of a numerous stock, is very generally adopted here. The best accounts to which I have had access induce me to suppose, that the stock in this division of the county, amounts to about four sheep upon three acres; and that four hundred and thirty seven thousand productive ones, support five hundred and eighty three thousand five hundred sheep; which yield, at two and three quarters pounds each, a produce of nearly six thousand seven hundred packs of wool.

The north-western part of the county, where the mode and the object of farming are no less different than the soil from that which prevails in the other division, supports a much lighter stock of sheep. There some portions are so entirely appropriated to cows, as almost to exclude all other cattle; and

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the quantity of excellent cheese, which the country produces, indicates that the fleece is not an object, with farmers, of prime concern. From the accounts which I have been able to collect, the stock is about three sheep to four acres; but this does not by any means correspond with the general descriptions, and the known circumstances of the country. If calculated upon an average of one sheep to two acres, perhaps the result will be near the truth. Two hundred and thirty five thousand acres therefore maintain a hundred and seventeen thousand five hundred sheep; and since each of them produces about three pounds of wool, the whole quantity of that article is fourteen hundred and sixty packs. Northern Wiltshire is much more pleasant than the other division of the county, is less elevated and better watered. Its lands are inclosed and contain more wood. Its soils are rich and warm, well adapt- to the Dairy, in the management of which its inhabitants greatly excel.

The wool of the county in general possesses a considerable degree of uniformity. The pile is for the most part white, soft, and remarkably clean; and since the fleece is scanty, the sheep producing no wool upon the bellies and lower part of the thighs, it is free from dag-locks and skirts. "Upon the lands which have been broken up, the wool becomes coarser and more hard, perhaps owing to the more intimate mixture of the chalk with the pile, and in the inclosures, sheep are chiefly kept for the purpose of fattening." The chalky Downs are, for the most part, covered with a thin stratum of other soil, but whether it be sufficient in all cases to preserve the perfection of the fleece I know not; for the wool

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is almost entirely wrought in the western manufactures, and only a very small portion I believe reaches the northern looms. The county itself produces several articles of the woollen manufacture, to which the domestic fleece must be well adapted, though almost destitute of the felting quality.

On the southern side of Berkshire, and especially upon the borders of Surry, a light and sandy tract, we meet with a very small sheep, which does not yield more than a pound and a half of wool, fine, soft and pliable. Along the banks of the Kennet, and extending to some distance from the river, the land sustains a heavier sheep than is found in most other parts of the county and enables it to afford a larger fleece with a longer staple. Through the broadest part of the county, runs a ridge of chalky hills, where the farms are large and the stock of sheep heavy, derived chiefly from the Wiltshire breed, and producing a sort of wool similar to that of their native plains. Toward the northern verge of the county, the land is rich and fertile, perhaps equal in goodness to the best soils of England, and produces a fleece well adapted to the clothiers purpose. Even the chalky soils, by a thin stratum of gravel which covers them, are rendered less injurious to the fleece, which they afford, than the pastures of some other districts. The flocks of Berkshire are generally represented as composed of good and handsome sheep, very useful by their disposition and their form in the system of husbandry, which are commonly practised there. Some of the South-Down and Dorset breeds are also introduced, and promise to contribute their share toward the farther improvement of the flocks. At present the fleece varies, both in its weight and its fineness, according

cording to the soil and the kind of sheep which produce it; but in some parts of the county is too much neglected while growing, and managed, when shorn, in a careless and slovenly manner. Perhaps the average weight of wool, produced by the different sheep in this division of the country, may be about three pounds and a quarter; the stock about three sheep upon four acres; the total number three hundred and six thousand six hundred, supported by four hundred and eight thousand eight hundred acres, and the whole produce four thousand one hundred and fifty packs of wool. A part of the fleeces is wrought by the western manufactures, and the remainder consumed by the northern ones. The weight most commonly made use of is the tod of twenty eight pounds.

Part of Oxfordshire, particularly the northern corner, the tract of land which follows the river Charwell, and a portion to the south of Oxford, is well adapted to sheep of the larger breeds. To the east and west of these richer pastures the soil is thin, and adapted to an animal producing a lighter fleece. The hills of chalk, which enter the county from Berkshire, and stretch across its southern division, furnish a pasture of a very inferior kind. On the richer lands, the pile is grown longer than some branches of the woollen manufacture require it to be, and the coarseness of the hair disqualifies it for the more delicate fabrics. Even in the stony districts, and upon the thinner lands, the wool is less valuable than it would be, if more care were taken to produce it for a definite purpose. Perhaps the existence of the blanket manufacture at Witney, and that of worsted shaggs at Banbury, both of which

which require considerable elasticity in the raw material, may have contributed to render the fleeces produced here less suitable to the fabrication of woollen cloth, than those of the neighbouring counties. In the southern division we observe the Wiltshire sheep, with their short and scanty coat, and as usual, cropping the dry grasses of a chalky pasture. Estimating the number of sheep by the best information which it was in my power to obtain, four of them seem to occupy about five acres of the surface. The fleece, which varies from three pounds to seven, we take at an average of four pounds and a half for the northern division of the county, and at three and a half for the southern. Within the former almost two hundred and sixty thousand productive acres are included, and one hundred twenty two thousand five hundred remain for the latter. The result therefore is nearly three hundred four thousand six hundred sheep, and five thousand three hundred packs of wool. Of this quantity one portion is consumed at home, a second at Leicester, in the hose trade, and a third in Yorkshire for woollens.

Buckinghamshire posseses on both sides of the Ouse a quantity of land, which supports middle-sized sheep, and some of their fleeces have a staple whose length and tenacity adapt it to the comb. But the pile is finer than long-stapled fleeces usually are, and mingled with too large a porportion of shorter wool; very often it is rendered too tender by the severity of the seasons, or the injudicious intermixture of a different blood, which abounds on the upland farms.

Further toward the south the fleece becomes much

much smaller, especially that which is produced upon those gentle hills, which separate the waters of the Ouse from those which flow into the Thames; and in the vale of Aylesbury, the richer soils are again favourable to the growth of a heavier staple. Across the South of the county proceeds a tract of chalky land, the continuation of that spur which has induced us to include Buckinghamshire within the district of Wiltshire. Upon these chalky Chiltern hills we again find the light-fleeced breed of sheep, distinguished from every other by the same strong and decided features, which characterize it in its native county. Descending from these dry and elevated regions, we meet with a great deal of wood and common land, with small and half-starved sheep, whose coats declare their own poverty and their master's inattention. In general the wool of Buckinghamshire, except that which is produced on the chalky soils, is fit for the clothiers' use, being short, soft and pliable; but it is very often filthy, incumbered with a large and coarse breech, and sometimes debased with an intermixture of kemps. The sheep most commonly met with are derived from the blood of the Dorset, the Wiltshire, and from a mongrel kind, which partakes of no decided character. In some parts of the county, where the wetness of the soil is injurious to the constitution of these tender animals, the farmer is induced to hire a flock from a distance, which, under the superintendence of its owner, shall be folded upon the land during the summer season. These foreign shepherds, as they are called, tell us that they come from Shropshire, and represent the wool as the produce of sheep from that part of the kingdom, although

both the flock and their own dialect contradict the assertion. The Dishley breed has been introduced into some parts of Buckinghamshire, and a taste for heavier fleeces very generally prevails. But in many cases, while with pleasure we notice the increasing value of the carcase, it is to be regretted that the pile is greatly injured. Gentlemen in this county would do well to increase the value of their wool, by a selection of the most attenuated coats; for they are situated very far from the ultimate markets, whither it must be sent, and the transit thither is incumbered with an unusual expence. When cultivating wools of an inferior kind therefore they subject themselves to a deduction from its real value, which bears a much larger proportion to the money they actually receive than they would have submitted to, had they produced a less weight at a larger price. Here the stock is about six sheep to eleven acres, i. e. four hundred and eight thousand eight hundred acres of land support nearly two hundred and twenty three thousand sheep; which, supposing each of them to afford three pounds of wool (a weight amply sufficient for the average fleece of this county) yield almost two thousand eight hundred packs. It is weighed by the tod of twenty nine pounds, and the greater part is converted into a useful state in the North of England, a small proportion of it is used at Leicester.

The hills of a cretous texture, still stretching eastward, divide Hertfordshire from the counties of Bedford and Cambridge by a very irregular outline. But the larger portion of the soil in this district is composed of a gravelly loam, resting upon a deep bed of chalk. With good cultivation it is extremely

extremely fertile, and produces a large quantity of wood. The sheep, which it supports, are chiefly of the Wiltshire breed, but often mingled with the blood of more northern districts; and the distinguished race of Sussex has not only been introduced with success, but at present is making rapid progress, and will most certainly improve both the flock and its pile. The whole number of those valuable, soft-coated animals of all descriptions amounts to rather more than two hundred and seventy seven thousand, which constitute the stock of almost three hundred and seventy thousand acres of land. Upon most of the farms a heavier fleece is found than that which is produced by the pure blood of the Wiltshire stock. The carcase is more completely enveloped with wool, and the staple is longer than that obtained from soils less favourable to the production of a healthy pile. Some old accounts make the average fleece weigh four pounds and three quarters, but as this seems to be taken without any reference to the fleeces of the commons, and before the introduction of a lighter stock yielding a smaller quantity of wool, we must deduct something from it, and calculate at only four pounds and an half, which gives us the produce nearly five thousand three hundred packs of wool. Almost the whole of it is wrought up in the North of England, some little at Leicester, and some at Bury St. Edmunds. This also I conceive to be a district where finer fleeces might be grown with advantage both to the farmer and the community; for the soil is dry and sound, the climate is free from the moisture which destroys the yolk of the fleece, and the chalk, except in the northern quarter, does not

lie sufficiently near the surface to affect the quality of the wool.

The amazing population of Middlesex imposes upon it a system of agriculture, totally inconsistent with the production of a large quantity of wool. Some poor and ill-formed sheep of the Wiltshire breed procure a scanty subsistence from the commons; but very few are kept in the inclosures, and those only for the purpose of producing early lambs, or fattening for the butcher. The parks of different gentlemen, with which this county abounds, perhaps more than any other in proportion to its extent, contain a great variety of sheep of different kinds, procured from distant parts of our own country, and from foreign regions. If more attention were paid to these isolated animals, the proprietors of them might obtain a degree of information respecting the growth of the fleece in general, and relating more particularly to the different varieties of the wool-bearing species, which cannot fall within the compass of ordinary observation. The accounts which have been collected of the stock of sheep maintained in Middlesex, give us nineteen upon thirty two acres; but we cannot with propriety estimate more than half the surface as contributing to their support, and hence we conjecture, that seventy six thousand acres produce, at four pounds per fleece, seven hundred and fifty packs of wool, from forty five thousand sheep. All of it may be classed among the shorter piles, and considered as applicable to woollen fabrics.

Perhaps it was not perfectly accurate to consider some of those counties, whose produce has now been described, as parts of the Wiltshire district; since the

the greater portion of their soils, their sheep and their fleeces, differs very widely from those of the Downs. But as the Wiltshire family is found in them all, especially upon the tract of chalk, which most probably conducted them thither, and since almost all the other kinds of sheep in this part of the kingdom exhibit indistinct features, I know not how to arrange them more properly than I have done. One fact however is remarkable, the sheep to the South of the chalky range are, with a few exceptions, of a much smaller kind than those in the North. There characteristic marks are more decisive, and this singular tract of land appears to have formed for ages a barrier which the flocks on either side could not pass without other influence than that of the common principles of husbandry.

The sheep of Dorsetshire, although bearing a great degree of resemblance to the variety just described, and perhaps descending originally from the same stock, are considered by agriculturists as a different breed. They have horns, which are placed boldly upon the forehead, and which project in some slight degree before it. Their faces and legs are commonly white, though some individuals betray a mixture of blood, by a dingy visage and a tufted front. They are gifted also by nature with a capacity of producing their young in great abundance, and at any season. In general, they are smaller than the Wiltshire breed, and lately have received some alteration by the introduction of the Dishley blood. In the neighbourhood of Weymouth, in the islands of Purbeck and Portland, and the country about Wareham and Pool, a peculiarly small sort of sheep

subsists, very different from those commonly called the native breed of Dorsetshire, and described as even smaller than those of Wales.

This is an uneven district, of which a large proportion is well adapted to the support of the woolly tribe, and applied by its occupiers to that particular purpose. In the vicinity of Dorchester, even within eight miles of the town, it has been supposed "that the whole number of sheep and lambs, including those of all ages, amounts to an hundred and seventy thousand"; and it has been sometimes quoted as an instance of hard stocking, which could not be paralleled in any other district. But if the terms "eight miles round Dorchester," describe a circle whose radius is of that extent, and we do not see how it can be interpreted, so as to include a smaller space of ground, then the number of sheep amounts to seventeen upon thirteen acres, which we have seen to be more than equalled on some of the downs of Sussex, and also in a few of those districts which support a much larger animal, and produce a far more weighty fleece. But on the contrary, the author who supposes that six hundred thousand are maintained upon almost the same plot of ground, but within a circle whose radius is only six miles, must surely have made some great mistake, for it supposes a stock which could scarcely be supported by the most luxuriant soil. When these two accounts, both of which are given by high authority, are compared together, they show how precarious is the basis whereon all calculations of this kind are founded, and teach us to be diffident in similar deductions. From the best information which I have received, and different statements being corrected by each other

other, the sheep stock of the county seems to be about six hundred thirty two thousand three hundred, or twenty eight sheep to thirty one acres. Some other persons have conjectured that the number is rather larger than we have stated, but it is evident, even in the same pages that their deductions are not accurate. The extent of Dorsetshire is taken at seven hundred thousand acres, the average fleece at three pounds and three quarters, and the whole produce of wool at almost nine thousand nine hundred packs. It is not often that the total produce of a county is estimated lower by the author of these pages than it is by others, who perhaps have had better means of information; but in this case, if they are correct, his statement is deficient by nearly two thousand packs.

The wool in this part of the kingdom is described as short, fine and close, highly esteemed in the manufacture of woollens, although inferior to that obtained from the plains of Salisbury. Complaints also are made against the sand, and filth of other descriptions, with which it greatly abounds; and some staplers have thought that part of it is too coarse and long. These latter defects I fear will not be remedied by the introduction of Leicester rams, and the taste, which at present prevails, is in favour of a large sheep and a weighty fleece. Here also, as is common in the southern counties, the lambs are shorn, and the wool produced by each is about one third of the quantity obtained from the dams. The fleece of the older sheep is employed in the western manufactures, and is weighed in a peculiar method. The integral quantity is denominated a Wey, contains thirty one pounds, and in making use of it great exactness seems to be observed, for it is generally

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described as "standing weight," whereas in other parts of the kingdom it is usual to allow the chance of draughts with a pound. Perhaps it is not possible now to ascertain how the custom of delivering only a standing weight originated, nor what the circumstances were which gave it a local influence.

Dorsetshire contains a ridge of lofty chalk hills in the centre of the county, which extend themselves toward the South, and form bold cliffs baring the ocean. This part of the district is covered only with a shallow soil, and leaves the wool too much exposed to a pernicious influence. On the northern side of the Downs are rich arable and pasture lands; on the border of Hampshire, an extensive heath, but declining on its southern verge into fertile vales. Perhaps these richer pastures may produce the fleece, which is sometimes complained of by woollen manufacturers, although it may be very suitable to the purposes of the worsted trade.

Some part of the wool grown in the adjoining county, Devonshire, has been already noticed. Among the breed of sheep, which produces there fleeces usually consumed in the manufacture of woollen yarn, those provincially called Nots, and the Exmoor, are the most numerous. Both kinds are animals of the middle size, or at least are larger than some others found on the eastern side of the kingdom, and have white faces and legs. They seem not to have distinct pastures, but graze promiscuously, except that the vicinity of their native hills causes the Exmoor sheep to abound more in the north of the county than in the other quarters. These are

a horned breed, produce a staple five inches long, and a fleece weighing upon the average about six pounds; the others are polled animals, yield rather heavier fleeces, and indicate that they naturally belong to a family of greater weight. But in Devonshire both the sheep and their coats seem to be greatly neglected, and the descriptions which have been given of its flocks are not so satisfactory as those which may be obtained respecting the stock of some other counties. In general the staple is considered as coarse and thin, more especially that which grows about the haunches of the sheep, and as susceptible of great improvement. To attain this object Mr. Marshall strongly recommends the culture of the Dorsetshire race, some of which are found here possessed of the full purity of blood. And the superior value of that and the Sussex breeds, when compared with the native stock, appears to be understood, for both of them are said to diffuse themselves rapidly over these western pastures. A singular variety of sheep, although not considered as a distinct breed, is frequently mentioned as subsisting in the neighbourhood of Okehampton, and if their fleece be of superior quality, a circumstance which inferior size does not always indicate, they might contribute to the amelioration of other flocks. Allowing something for the smaller weight of wool, which these sheep produce, for the circumstance of fleeces not being washed in some parts of the county, and for the general thinness of the staple, we cannot with propriety calculate the quantity of pile produced by the sheep of Devonshire at more than four pounds each.

In this extensive district we meet with a great variety of soil, although but little chalk; for that quantity

quantity of it which is found in the eastern angle bears no proportion to the general extent of the county, and is not worth observing. A strong loam upon a clayey bottom is the general character of the land, which being often inclined to moisture, unfits it for carrying a heavy stock of sheep. Devonshire is for the most part mountainous, and its surface greatly broken; forming romantic vales, pleasant both on account of the beauty of their scenery, and the richness of their pastures. But they abound most in its southern part, for the Forest of Dartmoor, a naked, moist and sterile tract, with the hills which extend beyond it, even to the Bristol Channel, occupies the West; and the uncultivated regions on the borders of Somersetshire deduct from the general fertility of the North. These are open Downs, fit pastures for flocks, and well stocked with sheep adapted to the mountains; But the forest of Dartmoor has no flocks properly belonging to itself, is not grazed with sheep during the winter se ason, and in the summer receives them only on the principle of agistment.

Deducting, therefore, from the general extent of the county the area of this forest, amounting to one hundred and fifty thousand acres, and also that of the pastures producing long wool, we have upon eight hundred and seventy three thousand seven hundred productive acres, almost four hundred and thirty seven thousand sheep, which yield probably about seven thousand three hundred packs of wool. This it must be acknowledged is a much lighter stock than we have met with in some other parts of England, but it is as large as the statements of the different farms will justify, and we must recollect that

that the union of mountains and of moisture is very unfavourable to the existence of numerous flocks.

The wool produced in Devonshire is wrought within itself, not as is usual in the North in large factories, where crowds, intent only on their daily task, and urged to early, unremitted and unvaried employment, form no habits adapted to general life; where the mind, left totally without stimulus, except that which arises from the strong impulses of nature, becomes more brutal; where the best dispositions of childhood are corrupted by the designs or the imprudence of more matured vice; and where the bland manners of youth are vitiated by perpetual intercourse with full-grown depravity; there, the artizan, employed at home in the midst of his family, superintends himself, and with the interest of a parent not the mercenary views of a task-master, all the concerns which relate to the health, the employment, the education and the morals of his domestics. This old mode of manufacturing the produce of our folds, inconsistent perhaps with the commercial superiority of Britain, is almost wholly laid aside in the southern half of the island; being retained only in this western promontory, in Wales, and, as I am informed, in a small village in Cambridgeshire, whose inhabitants in some other respects also retain in an eminent degree the simplicity of ancient customs.

Cornwall exceeding mountainous, and almost uncultivated except upon the sea coast and the banks of the rivers, which flow only a short distance through the country; exposed also to great degrees of moisture, and the strong winds of the ocean, is very

very ill adapted to the constitution of sheep, more especially toward its western point. Formerly the native sheep were very small, and produced a coarse fleece of but little value, wrought up by the manufacturers of the county; who when their trade was more flourishing than it is at present, enjoyed some peculiar immunities. Now both the flocks and their wool are improved by the breeds, which have been obtained from the adjoining county. But these better formed animals are almost confined to the richer soils, and some of them under good management afford a fleece fitted to the worsted trade. Yet the greater part of the wool is short, and none of it is washed, or sent out in a raw state. The yarn produced from it is partly wrought into the common serge of the county, and the remainder sent into Devonshire. In selling their fleeces the inhabitants use among themselves the pound of eighteen ounces.

Small sheep here yield only about four pounds of wool, even though unwashed, but no account is given of the quantity of stock, nor have we any means of ascertaining the proportion of the better sheep when compared with the number of the others. Considering the irregularity of the surface, the nature of the soil and the climate, and comparing the district with others which resemble it, I think we ought not to estimate the number of sheep at more than one to four acres. The county, containing eight hundred and twelve thousand acres, may probably support about two hundred and three thousand sheep, a stock scarcely more than sufficient for the internal consumption though the people may derive a large portion of their food from fisheries; and if this number

number of sheep be correct, the quantity of wool they afford is almost three thousand four hundred packs.

Few satisfactory accounts have been published respecting the sheep of Somersetshire, and the different modes of husbandry adopted there contribute, with the irregularity of the surface, to render it difficult to form an accurate idea of their produce. Most of them have been originally brought from the neighbouring counties; in the East those of Wiltshire abound, in the West those peculiar to Devonshire, and the Dorset race has diffused itself more generally through the whole district. There is one indigenous variety, a small horned animal, of ill shape, with white face and legs, which produces from three to four pounds of wool; its present range and original pasture, is that bleak and elevated tract distinguished by the name of Exmoor. The Mendip hills are stocked with a small animal, but I have never met with a particular description of it, and am therefore unable to say, whether it be a distinct breed, or claims affinity with any of those families which have been mentioned. Its fleece weighs from two to three pounds. In some detached parts of the county we meet with a heavy polled race, which produces long wool, and resembles, in its weight and shape, those of Dishley. On the richer soils it is very common for graziers to procure a polled breed, whose wool is much longer than is requisite, or even desirable, for the manufactory of woollen cloth. By the exertion of a few spirited individuals, the pure blood of Bakewell's breed has been obtained, a few individuals from the Sussex Downs, and in one instance, through the liberality

of his Majesty, a descendant from the Negretti race of Spain, which has produced a small but valuable flock, whose fleeces among the wools of English growth bear a distinguished price. Here the peculiarities of the pasture and the climate seem to have distributed the flocks very irregularly. Upon the more elevated farms sheep are numerous and small, in the richer vales they give place to oxen, or are nearly expelled by a predilection for the dairy-system of agriculture; and the few which are tolerated there, produce a heavy fleece. On the moister soils, the moors or half-drained fens of the county, the constitution of the sheep suffers too severely, and the stock of course is light.

When speaking of the Exmoor sheep of Devonshire, it was observed that their fleeces weighed about six pounds, twice the weight which the same race produces on its native pastures; but it should be recollected that here it is washed, while there it is very often stripped of its fleece incumbered with all its yolk. The real difference of pure wool, I apprehend, is not very considerable. This county has been known to furnish fleeces more dissimilar in weight than any other district of the kingdom, for when the smallest sheep has produced only two pounds of wool, the largest has afforded fourteen; but the most common weight rises from three pounds to eight, and the average perhaps is about four and an half. Wool grown upon inclosed land is described as soft and silky, rather long and of a yellow tinge; but the manufacturers of Yorkshire say, that it produces cloth of too harsh a texture. Only a small quantity is sent thither, and the remainder is wrought at home. To ascertain its

its quantity, a weight containing twenty one pounds is made use of, but I know not whether it be denominated a tod, a wey, a stone, or be distinguished by some other name. But few data are furnished, as a basis for the calculation of the stock; such as we have make it amount to ten sheep upon seventeen acres; i. e. five hundred thousand and seven hundred sheep occupy eight hundred fifty one thousand two hundred acres of land, and produce almost nine thousand four hundred packs of wool, whose quality when compared with that of the Dorsetshire fleeces, is as eight to nine and a half.

Much is expected in the culture of wool from the county of Somerset; for it not only is the seat of a manufacture which must naturally, though silently, operate upon the fleece, and contains a race of animals, from which it is possible to obtain an unrivalled staple; but the attention of the farmer, the manufacturer, and the patriot have been directed to it by the establishment of a society at Bath, to investigate the principles, and to promote the practice of scientific husbandry. No praises which I can bestow upon institutions of this nature, the character of their members, or their exertions, will be of any avail in rendering them more celebrated. Yet in common with my countrymen, I have the privilege of being instructed by their communications, and the pleasure of congratulating every friend of mankind upon the benefit which must result from their labours and their example, by the improvement of the first, the most indispensible and universal of human arts. It cannot be expected that the lower class of farmers should at once change their habits and adopt new practices, even though

attended with obvious advantage ; but the institution of agricultural societies has already excited among persons of property, science and judgment, a thirst for knowledge founded upon actual experiment, which presages a brighter æra in the history of husbandry. Bath is the centre of one, whose members have already done much toward diffusing the knowledge of their art, even to the utmost verge of the British isles. While the tepid fountains have been the means of restoring to the enfeebled constitution its natural tone and vigour ; the monuments of rustic merit have tended to cure the mind of ignorance and prejudice, to counteract the ill effects of habits and modes of thinking in agriculture, formed under the influence of principles and customs, which science and reason cannot justify. And one active friend of man has not only watched the reviving spirit, prescribed the salubrious course of medicine and of regimen, but has endeavoured to re-establish the debilitated mind, by rousing its attention to objects of a rural nature, and exciting it to a course of active employments, well calculated to confirm the health, to improve the understanding, to enlarge the fortune, and to gratify the best feelings of social beings. The benefit of more liberal sentiments and rational practice in the management of land, has been already felt, and will increase, I trust, until every acre in the empire yields its full share of a valuable produce.

Having had occasion already to notice the kind of sheep grazing on the Cotteswold Hills, we may now confine our attention to the other part of Gloucestershire. It exhibits a great variety of soil and rural management. In the eastern parts of the county,

county are the Southern Wolds, a ridge of hills which resemble in their appearance the Downs of Wiltshire, and are employed in the same manner. Farther toward the North, the hills not only become more picturesque and fertile, but are covered with a light loamy soil. The southern parts of the Vale of Glocester, are rich, highly cultivated, and do not yield perhaps in fertility or beauty to any part of the kingdom, but are chiefly occupied by cattle. Higher up the Severn the soil is too wet to admit a large stock of sheep, and it is impossible with any advantage to support upon it a breeding flock. To the West of that noble river, which forms the principle feature of the county, and gives the peculiar character to some of its soils, both the land and the system of farming bear a great resemblance to those of Herefordshire.

Perhaps few counties are so much affected by the flocks of its neighbours. On the Wolds we meet with the Wiltshire breed of sheep, in the Vale that of the Cotteswold hills, and in the other district, the descendants of the old Herefordshire race. No account being given of the quantity of stock, we can gather our ideas of it only from the general circumstances of the county; and perhaps after all the pains taken to obtain a correct opinion, the following statement may differ widely from the truth. If the more elevated parts of the county be supposed to graze one sheep upon every acre, the result will probably be above the truth, for nine tenths of that kind of land are under the plough, and they contain the forest of Dean, a woody and uncultivated tract. The wet soils of the

upper Vale can scarcely support above one sheep upon two acres, and the rich pastures of the lower district are appropriated, for the most part, to other purposes than the feeding of those smaller animals. It is not probable, therefore, that five hundred and twenty eight thousand acres, support more than three hundred and fifty five thousand sheep, or produce of wool above five thousand four hundred packs. In this statement the fleece from the Wiltshire breed is estimated at three pounds, that of the Ryeland at two, and that procured from the Vale at five. The wool here was formerly wrought in the county; but during the period of depression under which the western manufactures laboured, a part of it was sent into other counties, some even to Yorkshire. But the introduction of the modern machinery, and the consequent revival of trade in these parts, will cause a demand for the whole of it at home In weighing it, toward the south the tod of twenty eight pounds is used, that of twenty one is sometimes adopted, and on the Herefordshire border the stone of twelve pounds and a half is the common weight.

The limits of this western district of short wool are very accurately defined by the ocean, the Severn, and the bed of chalky soil which bounds it towards the East. The sheep are placed irregularly upon its surface, and their wool is of various descriptions. Through a large proportion of the district, the animals are greatly neglected; and though prompted to the culture of wool by the general diffusion of a manufacture which requires it at their very doors, many of its farmers are more careless of obtaining a perfect fleece

fleece, and of preserving it in the best manner, than those in any other part of England, except on the northern range of dreary mountains. It is most sincerely to be wished that the spirited exertions of the few scientific shepherds, who reside in those mild and genial regions, should excite a general attention to the state of flocks, and render their owners dissatisfied with producing an inferior fleece, while they depend for the employment of the poor upon the produce of the Spanish cotes.

Herefordshire contains another variety of sheep, which diffuse themselves through that county, and a part of those English ones which adjoin to it. These animals have no horns, white faces and legs, and are sometimes very handsome, but possess also the frequent concomitant of beauty, a delicate and tender constitution. They afford about two pounds of very excellent wool. But the common sheep of the district differ considerably in the beauty and value of their wool from the Ryeland race, probably that which composed the old flocks of the district so celebrated in the age when fine English fleeces were first diligently sought after. Certainly the fleeces of Herefordshire in general are excellent; inferior it must be acknowledged to some wools obtained from distant countries, but second to none in Britain, except that which has been obtained from the descendants of the Spanish breed. This also is the only part of the island where the practice of cotting has descended from our ancestors to the present day; and though its advantages may not always be evident even to the eye of a shepherd, yet it indicates an attention to the flocks which has most probably contributed to maintain their superior excellency. Some years

years since, I was presented with a sample of wool from this county of the most perfect kind I ever saw. It was completely grown, with a staple very thick and uncommonly full of pile, soft and delicate beyond description, its colour was beautifully white, and the hair extremely fine, in length it scarcely reached half an inch. A small quantity had been preserved as a curiosity, and the lock alluded to was presented as such. But most of the wool, even of this county, admits of a very different description. Upon the sandy soils, it is said to be "thin, harsh and out of proof, (that is, grown with a smaller quantity of yolk than was requisite) in the inclosures, thick and yellowish; upon the commons yellowish, soft and silky, but not always remarkably clean, and sometimes subject to kemps." This, however is a rather old description of the fleece; and we have reason to suppose in an age so attentive to every branch of agriculture, in a county where the highest price is obtained for English wool, and where customs already prevail, which are admirably adapted to promote improvement, that the produce of the sheep will become more valuable, and that it will obtain a nearer resemblance to the boasted pile of other climates. No other part of our native land takes so much pains to render its fleece marketable as this. Here the old custom of employing sworn winders is diligently adhered to, and they are engaged to strip off the coarse part of the fleece and to wind up only the better kind of wool; to tie about half a dozen fleeces together, and to ticket the weight of each bundle, or as it is there called trendle.* In this

* Perhaps from the word trundle, which signifies a round thing, or a substance that will roll.

county the bundle does not resemble that of Norfolk, as sometimes is supposed, for in Herefordshire the fleeces are wrapped up separately, very hard, and commonly in the shape of a nine pin, and of these the bundle is composed; but in Norfolk the unwound fleeces are spread upon each other, and when a sufficient number are thus disposed, all of them are rolled up in one general mass and there also called a bundle. This latter is certainly the easiest and the quickest mode of securing the fleeces, but it obliges the farmer to conceal the best of his wool, and the buyer to purchase it rather from recollection of the sorts which the parcel produced in former years, than from any opinion formed of the value of those particular fleeces which are offered to his notice. The parcel of a certain person, he knows, was last year either good or bad, and he supposes that its quality will not be greatly altered in this. But where every fleece is wrapped up singly, there is evidently much more room for the exercise of skill in estimating the value of a quantity of wool, and a more solid basis whereon to found a definite opinion. In Herefordshire, fleeces are sold in public fairs by a stone of twelve pounds and a half. The weight of them being ascertained before they are exposed to sale, business is done at once, and with ease; but it is grossly ridiculous to call those agricultural meetings Wool-Fairs, where a number of gentlemen meet in a private room, talk learnedly about the different value of particular breeds of sheep, and finally close by agreeing what price they will have for their wool, and making a general offer of it; where not a single fleece is to be seen, where no stranger can purchase but

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at the utmost hazard of entering upon a bad speculation, for being ignorant of the country and its produce, it is highly probable that none but rejected parcels will fall into his hands, and finally discourage him from appearing at the fair again. If it be the object of these gentlemen to encourage competition in the buyers, let them show us the article which they offer, we shall each then form his own opinion; let them transact the whole business upon the spot, then we shall not be obliged to tarry whole weeks before it can be completed; let them adopt the customs of the more northern public markets, and no disputes will arise, nor any jealousy subsist between the sellers and those who purchase. I confess myself the friend of public markets, of open and candid transactions, of institutions which give to all an equal chance, of those which are calculated to secure for an excellent article its adequate price, and to deprive an inferior one of its fictitious value. In the West-Riding of Yorkshire we certainly see too plainly the benefits arising from public and open markets, to be in the least apprehensive that if generally instituted for the sale of wool, they would injure the interest of the stapler. But if they are instituted, let them be markets, meetings where something is to be seen as well as purchased, and not a mere name, an unsubstantial something in which the buyer has no interest. Then, and not till then I apprehend, will the wool-grower have no reason to complain that staplers do not attend, that they appear to dislike these fairs.

From the trended fleece of Herefordshire about one tenth of its weight is taken of coarse and inferior locks, but a considerable quantity, without being treated

treated in this peculiar manner, is sold at about ten per cent. less price per stone; a circumstance which leads us to imagine, either that the quality of the untrended wool is not so good as the other, that it contains a great deal of dirt, or that the coarse breech left upon the fleece is of no value. The average quantity of wool produced by each sheep is little more than two pounds, but as no mention is made of the stock, which a given extent of land supports, we are left here also to conjecture the number of sheep contained in the county. Perhaps a supposition that four acres of productive land are grazed by three of the animals, will furnish a general result quite as numerous as circumstances will authorize, because this is a larger stock than the other counties of the district support, because it is chiefly an arable tract, and a larger proportion than one eighth of the surface I apprehend is occupied with wood, water, buildings, &c. Probably five hundred thousand sheep may be supported upon six hundred and seventy two thousand acres, and produce about four thousand packs of wool. The fleece is here estimated only at two pounds, although the Ryeland race is nearly extinct, and the new mode of farming has enabled the shepherd to keep a larger breed, because the estimated produce of wool is supposed to be quite as large as the county affords. Herefordshire sends its fleece both to the clothiers of the West and of the North of England. Situated between the two markets, it is scarcely possible to suppose that it does not obtain the full value of its pile; for though complaints are made by the wool-grower of combination and monopoly, the history of the woollen manufacture most clearly evinces

evinces a rivalry between the clothiers of these distant parts of the country.

The staple of Herefordshire shows that the soil is well adapted to produce wool of the first quality, and if the Ryeland breed of sheep could be rendered sufficiently hardy to become the stock of other parts of the kingdom, it would furnish the means of improving the quality of English wool, much more rapidly than by the introduction of a few Spanish rams. Dr. Parry informs us that he has produced sheep, in which the blood of the Merino and the Ryeland breeds are mingled, whose good qualities seem not to be inferior to those of any other race in the kingdom. The subject is fully discussed in his Treatise upon the Possibility of Producing Fine Wool in Britain; in which he describes the fleece of this sheep as possessing a staple about three and a quarter inches long, of uniform fineness from every part of the sheep, of a colour beautifully white, and, "in general" free from kemps, weighing also from five to six pounds. The Doctor shows the hair to be excellent, by comparing it with Spanish wool, and describing its produce when manufactured; yet in this latter statement he has failed of affording a definite idea respecting the value of his wool, by not detailing more particulars. Still, however, his experiments are highly useful, and his deductions deserve attention. The Treatise will be read with pleasure by every impartial enquirer after that kind of knowledge, which it professes to communicate.

Monmouthshire does not boast of a large proficiency in the art of agriculture, and but little

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is said either of its sheep or their coats. The eastern part is upon the whole a fertile and woody country; the western exhibits the rough features of Wales; and its large commons are stocked with small ill-bred sheep, whose yellow fleece is short, fine and ragged. In some parts of the county the wool differs considerably, and a few large fleeces are produced. Upon the whole we reckon that one third of the land, supports a stock in the same proportion that South Wales does, viz. five acres to one sheep; each of the animals producing one and a half pound of wool. Probably the remainder of the soil may furnish food for three sheep upon four acres; that is, three hundred twenty two thousand six hundred support one hundred and seventy seven thousand six hundred sheep, which yield fourteen hundred packs of fleeces as the general produce of the county. Here the usual deduction of one eighth is not taken from the extent of the mountains; and the most common fleece is estimated at two pounds.

The soil of Worcestershire is sometimes sandy, in general rich, and never of that kind which is most pernicious to wool. The vale of Evesham, distinguished on account of its fertility, produces a quantity of large wool, of which the fleeces weigh nearly nine pounds. But the sheep of the county are generally small; and the mode of stocking the land is various. From the average of the farms, whose extent and number of sheep are given, in any accounts which have fallen under my notice, seven hundred and seventy eight sheep are placed upon eight hundred and seventy acres; and at the

time it is acknowledged, that in some parts of the county very few are kept. In some instances it is evident that an extensive sheep-walk must be connected with the farms; for the acres, which they are said to contain, could not possibly support the quantity of stock assigned to them. There are other cases similar to this, in which, though sensible of error, we do not deviate from the general average, because we have no means of correcting it without substituting conjecture for facts; and it is easy for persons better acquainted with the local circumstances of districts, to point out the mistakes, and to furnish for calculation better data. Were I to form an opinion, by merely passing through the county, from a short residence upon its border, and from casual and unsatisfactory information, I should estimate the number of sheep at no more than three to four acres, and the fleece, as it is usually represented, at three pounds and a half. But according to the statement given above, Worcestershire supports three hundred and thirty thousand four hundred sheep, upon less than three hundred and seventy thousand acres; and yields from them four thousand eight hundred packs of wool. The pile here is short and well-grown, of a soft and silky texture, and sometimes of a reddish hue.

The Shropshire sheep are of various kinds. It is probable that the native stock consisted of small animals, with white faces and legs, destitute of horns, and that it produced a valuable wool. The Dorset race we are told, purchased at the fair of Wey-Hill, has been introduced among the old flocks, and the descendants from this mingled blood produce a staple

staple too long for the best purposes of the woollen manufacture. But we cannot help conjecturing that these foreign sheep were not really inhabitants of the chalky Downs ; that they have been collected from some nearer pasture, and introduced into Shropshire under a fictitious name. In the northern part of the county, the rich and fertile pastures, chiefly appropriated to the dairying of cows, support but few animals of the fleecy tribe. The central, southern, and western regions, being more mountainous, contain large sheep-walks, and are furnished with numerous flocks. Those on the western border resemble the breed which has already been described ; but in the southern division of the county, the sheep have black, brown or spotted faces and legs, and differ so much from each other as to induce us to suppose, that they are the remains of some old families, now almost extinct ; but, if selected with judgment, they seem capable of contributing their share toward the general improvement of British wool. The race which was originally cultivated upon the Morfe common has been long admired, and has sent its colonies into other counties. The Long-Mynd sheep, when crossed with those from the Sussex Downs, are represented as producing a hardy and valuable stock. From the great variety both of domestic sheep, and of those procured from a distance, which abounds in the South of Shropshire, it appears that its farmers push their enquiries with spirit, and may be expected to obtain and communicate much information from that wide field of experiment, which is open before them. The fleeces of Shropshire are generally light, by far the larger number

of them weigh only from one pound and a half to two and a quarter ; but in the more level parts of the county, or when produced in the vales, they advance to three pounds ; if procured from the heavier breeds of sheep, they sometimes reach to four. Supposing that the average for the whole county amounts to two pounds and a half, then it furnishes four thousand four hundred packs of wool, containing four hundred and twenty two thousand fleeces, procured from almost seven hundred and forty thousand acres of land ; for the stock is nearly seventeen sheep to thirty acres. The Morfe fleeces are very often trended according to the custom of Herefordshire, and lose by this mode of winding them about one tenth of their gross weight. Wool is sold here by a stone of fifteen pounds ; its quality is generally approved of ; and being rather tougher than some of the most celebrated eastern fleeces is mixed with them, and applied to very useful purposes. The whole produce I believe is sent into Yorkshire. The pile frequently has a tinge of redness ; and some samples which lately passed through my hands were very kempy, with coarse and spiry tops to the staple ; circumstances which indicate a degree of negligence in the shepherd not always excusable, nor consistent with his interest.

Treating of Long-wool we observed that a small quantity is produced in Staffordshire, particularly upon its richer meadows. The remainder of the county furnishes a fleece of shorter staple, which is adapted to several purposes of the clothing trade ; and the greater part of it is sent into Yorkshire ; the residue being employed in domestic manufactures.

In

In the northern part of Staffordshire commences that mountainous district, wild and unproductive, which we shall have occasion to trace in our progress even to the borders of Scotland. The southern portion is fertile and pleasant, but in some places betrays symptoms of its neighbourhood to more elevated and barren pastures. Upon the wide commons which abound there, and which seem from a distance to be composed of light and dry soils, a few sheep are seen, but they are poor and diminutive animals. Several varieties of this class abound in the county, and afford fleeces as dissimilar from each other as though they had been produced upon far distant pastures. Besides the Dishley breed of sheep, which has been noticed before, we find in the south-eastern parts polled ones, with white faces and legs. Upon the Moorlands is a race which appears to have subsisted there for several ages, and to have undergone but little alteration. In the pastures least adapted to this kind of stock, the breed is far from being pure, some individuals having horns, and others being destitute of them; while many show by the dark hue of their faces and legs an alliance to one family, other flocks betray a mixture of blood by their grey or spotted visage. Indeed this variety might be expected, for many of the flocks are only annual, and being purchased from the more healthy walks of the county, or from some neighbouring district, carry with them the visible and unambiguous testimony of their native pastures. On the heaths in the South of the county is a grey faced sheep without horns, bearing fine wool, and greatly resembling the Sussex breed; perhaps it was originally derived

from Shropshire; its produce of wool weighs about two pounds. Upon the western commons is a black faced, horned breed, yielding also fine wool. But upon the eastern Moorlands, the sheep have white faces, no horns, and wool rather long; a few individuals also may be observed from the race of Dorset and of the Cotteswold hills. The sheep of Shropshire reared here are said to yield more wool than upon their native hills; and the general produce of the county, so far at least as it comprises only small fleeces, is weighed by the stone of fifteen pounds, or of fourteen. The influence of the Yorkshire market embraces the whole of this district, and extends far beyond it. Farms here very frequently have a common right annexed to them, which being neglected in the statement of the acres, and stock of sheep, creates some difficulty in calculating the produce of the county, and renders those who attempt it peculiarly liable to error. Twenty one sheep, it seems from the best accounts I have met with, occupy a hundred and fifty acres. The general average of the county has been stated at three sheep to ten acres of land, and from thence in different proportions up to half a sheep per acre without a common right, and with it "at a great deal more." But as I have no means of ascertaining the proportionate extent of the appropriated land and that which lies in common, we must estimate the stock of the district at the rate which has been mentioned by others, concluding that five hundred and fifty thousand acres, furnish food for more than an hundred and eighty three thousand sheep, and enable them to produce fifteen hundred and twenty packs,

packs, for each fleece is estimated at two pounds. This small quantity of wool produced upon so large a space of land, may perhaps surprise some who have been accustomed to contemplate the more numerous flocks of the southern districts; but in our progress through the mountainous regions both of England and Scotland we shall have frequent occasion to remark that, though often appropriated almost entirely to sheep, the number which feeds there is comparatively small. Soils of a middle quality are generally best stocked with sheep, and yield the most valuable fleeces.

Perhaps we shall not have a better opportunity, than from this point, of returning to collect the quantities of short wool which are produced in the counties of Warwick, Leicester, and Lincoln. In Warwickshire this sort of wool is produced toward the North and West, a country containing a considerable proportion of wood, and some extensive commons; but the stock of sheep is in general light; some of the land is not adapted to them in the winter season; and though a larger number is summered, and of course shorn there, yet the produce of wool does not appear to be very heavy. We have no general account of the stock, that I know of, nor any particulars of farms selected from this part of the county; sheep we are assured are few, and their fleeces weigh about three pounds. It is not probable therefore, that three hundred and sixty six thousand acres, under these circumstances, will support more than one hundred and eighty three thousand sheep, or yield above two thousand three hundred packs of wool.

Upon the forest land of Leicestershire a quantity of short wool is produced, but no particulars are given of the farms. This part of the county is high, naked, and

and comparatively barren, resembling the Heath of Ancaster in the county of Lincoln. If we may judge of the stock of one place by the account which is given of the other, we should estimate it at two sheep upon five acres, taking the average fleece at about three pounds and a half. Fifty thousand acres have been mentioned as the extent of Charnwood Forest and the Wolds, in Leicestershire, and we take this as a neat quantity, because in these parts of the county there are no towns, but few roads, or woods, or streams. The stock therefore consists of twenty thousand sheep, and produces two hundred and ninety packs of fleeces; and though this quantity be of small importance to the manufactures of the kingdom, as the calculation rests upon a very slight basis, I was glad to find that it corresponded with the opinion of a gentleman who is acquainted both with the pasture and the produce of this range of hills. The fleeces, in the county where they are grown, are called fine ones, but we must not on this account think that they resemble the valuable pile of many other districts.

The short wool of Lincolnshire which is produced upon its elevated pastures, is generally about four inches long, coarse, thin of hair, tender, and sometimes the staples grow detached from each other; the colour is not always good, and in some instances a quantity of dirt is concealed by the custom of winding fleeces with the leech outwards, which prevails in some part of the district. These dryer parts of Lincolnshire, comprising the Wolds together with the Heaths of Lincoln and Ancaster, contain about three hundred and nine thousand calculable acres, which support somewhat more than one hundred

dred and twenty three thousand six hundred sheep, and furnish to their proprietors more than two thousand eight hundred packs of wool. Had not this tract of land been surrounded by pastures capable of affording nourishment to the largest and most sluggish kind of sheep, it is probable that its flocks would have consisted of much smaller animals; that their wool would have been light and more valuable. Since also both the soil and the climate are adapted to sheep of the most attenuated coat, the wool-grower should enquire whether it would not consist more with his interest to cultivate a perfect staple, rather than that now obtained from his farm, and which generally betrays a great want of nourishment. The stock here is estimated at two sheep upon five acres, and the weight of the fleece at five pounds and a half.

Nottinghamshire, on account of the general dryness of its soil and its climate, is very suitable to the constitution of wool-bearing animals. The extensive tract of sand on the West of the Trent, the expanded meadows of that broad and rapid river with the easy slopes which bound them, the fertile Vale of Belvoir, and the strong clays distinguished by the appellations of North and South, form the principal features of the county. On the first of these geographical divisions we observe a small breed of sheep with black hair both upon its face and legs, a horned animal; perhaps a cultivated branch of that family which spreads itself so generally over the northern mountains, or the remnant of a race now almost extinct and similar to those breeds which we noticed in the counties of Salop and of Stafford. It produces about two pounds of short and fine wool, well adapted to the clothiers' use.

use. The inclosures on the western side of the river contain a heavier kind of stock, which yields a longer staple and is evidently a mongrel breed produced by the combination of the forest race with the blood of the larger kinds of sheep which surround it. The fleece obtained from it is of a medium fineness, of a good colour, soft and clean. The wool from a single sheep is generally about four pounds, and its qualities are usually admired in the fabrication of woollen cloth. From the meadows of the Trent, and the borders of the county near to Leicestershire, wool of an heavier kind is obtained, for the flocks being generally affected by the Dishley blood, the fleeces which they produce weigh nearly seven pounds. The stock of the county, according to the most correct general average which I have been able to procure, is less numerous than might have been supposed. It amounts only to twenty seven sheep upon the extent of forty six acres; and the quantity of productive land is almost four hundred thirty five thousand seven hundred. If we estimate that the forest breed occupies about one hundred forty five thousand two hundred acres, the mixed race two hundred seventeen thousand eight hundred, and that the remainder of the county is grazed by the Trent side and Dishley sheep, then of the first kind of wool there are seven hundred and nine packs, of the second sort two thousand one hundred and twenty, and of the third twelve hundred and seventy; the whole number of sheep being nearly two hundred fifty five thousand two hundred. Perhaps the proportions of the different kinds of wool may not be perfectly accurate; the intelligent reader will perceive that precision in this case was not to be expected;

ed; but I trust that he will not find the total quantity very erroneous. Part of the wool produced in Nottinghamshire is wrought at home, but by far the larger portion of it is sent into Yorkshire; and we are sorry to notice that, upon soils as well adapted to the growth of fine wool as any in the kingdom, a disposition prevails among the breeders of sheep for the culture of an heavier fleece. The system of sheep-farming, in almost every district of the kingdom, is greatly affected by the neighbourhood in which it is placed. The situation of Dishley, and the success of Bakewell in producing a valuable breed of long-wooled sheep, have diffused a taste for heavier fleeces through the whole central part of England; and it is indulged almost without discrimination of soils, climature, or even the qualities of the native stock.

It is a remarkable fact, that every attempt to improve the short wool has originated in maritime counties, where we may justly suppose that the influence of example is least perceptible, and where wool growers have depended more upon their own genius than upon the opinions of their neighbours. The culture of the middle kinds of wool upon thin soils cannot ultimately benefit the farmer; for it requires but little sagacity to foresee that fleeces of this description will shortly be produced in more than sufficient abundance; that they will have to endure the rivalship of the improving pile of Scotland, of that which can be obtained from Ireland in considerable quantities, and from foreign countries to almost an unlimited extent. But on the contrary, the stapler, the manufacturer, and the merchant, find it difficult to procure a sufficient supply of the prime articles in the different branches to which they attend.

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Nottinghamshire also, it must be observed, is most admirably situated for the production of every kind of wool in its perfect state; its soils in different parts are suitable to each description of fleeces; it is connected on one side with the seat of the woollen manufacture, on the other with that of the worsted-hose trade; it contains within itself a manufacture of the longest staples; and possesses an easy communication both by land and water with every market.

Derbyshire introduces us to a new district of short wool, which extends from the High Peak to the banks of the Tweed, and from the Moorlands of Yorkshire to the Irish sea. It is occupied by a race of small sheep with black faces and legs, with horns somewhat large. Its fleeces are remarkably loose, shaggy, and coarse; the breech of them is very hairy and long; the staple is tender and ill grown, or it would be adapted to the comb. This breed has a hardy constitution, active temper, bold eye, and is well adapted to the pastures which it occupies. Perhaps no species of sheep is more neglected, not even that of the Cornish mountains. Yet in some parts of the district attempts have been made to improve it, and their effects will be pointed out as we proceed.

The South of Derbyshire, and its eastern border are rich and well cultivated tracts; the North is distinguished by those mountain scenes which have been visited for purposes of health or curiosity, and so often described as to be generally known. The two portions of the county adopt different systems of sheep-farming, and each maintains its peculiar kind of stock, resembling, in both instances, that of the adjoining districts. It is not possible to ascertain with any

any precision the number of sheep supported upon the mountainous parts; because the extensive commons, which abound there, enable the cultivated land to make a return of this kind of stock more numerous than it really supports. From the few accounts which I have met with of its farms, the average stock amounts to nearly twenty one sheep upon nineteen acres; but this is subject to a large deduction, for the moors here cannot be supposed to maintain a heavier stock than the same kind of land does in other parts of the district, where we are assured it does not exceed a sheep upon ten acres, Correcting the statement therefore by this general information, we conclude that three hundred and sixty two thousand four hundred sheep occupy a pasture which comprises almost five hundred fifty three thousand three hundred acres, exclusive of those allowed for roads, wood, water, and buildings. The fleece also, estimated upon an average of three pounds, gives a result of four thousand five hundred and thirty packs. The wool of Derbyshire cannot boast of a superior colour, most of the fleeces have a blueish cast; the pile is soft, silky and flexible; it felts well, but is grown rather too long, is imperfectly washed, and sent to market in a dirty state. That market is Yorkshire.

Sheep are by no means the favorite stock among graziers in Cheshire; the few which are observed there, are procured from Wales, or some of the numerous counties which border upon this. The high grounds of the eastern side, and Delamere forest, support a larger stock than the other pastures. The sheep have black or brown faces and legs, are small and produce short and fine wool.

The fleeces of the county in general vary in their weight from one pound and a half, to four and an half. Probably the commons, heaths, and wastes of Cheshire, may support about fifteen thousand sheep, and produce ninety three packs of wool; the other parts, more cultivated, may be stocked by about fifty thousand, or nearly twelve sheep upon one hundred and sixty seven acres, which, yielding about four pounds of wool each, supply the manufacture with eight hundred and thirty packs. But it is evident, that these flocks are not sufficiently numerous to furnish the necessary supply of mutton to the inhabitants of the country; and that a number of fat sheep, brought in from other quarters for the purpose of slaughter, must cause the skin-wool to bear a larger porportion to the fleeces, than is usual in most other parts of England.

Lancashire also is very deficient in its stock of sheep; owing, says Mr. Holt, "to the number of dogs which are kept; to the badness of the fences; and to the want of information among the farmers, who are acquainted with no other kinds than the Welsh and the Scotch." By this latter description, he probably means the mountain sheep, so generally spread through the northern part of England, and which resembling one of the favourite breeds of Scotland, may be supposed to have been procured from thence. Some flocks however are kept upon the mountains in a very poor and neglected condition, and others are found upon the low and fertile pastures of the West; but from the South of the county, as from part of Yorkshire, Middlesex, Kent, and Surry, they are almost banished by the excess of

of population; none being found there but those which are fit for the butcher. Between Lancaster and Kendall, we meet with the Silver-Dale breed of sheep, highly esteemed for its excellent qualities and its fleece. The staple produced by it seems to be long, white, and heavy. A rocky limestone is the pasture on which it feeds, and the limits of its range appear to be narrow. The breed is horned, and has a white face and legs.

In the northern counties it is peculiarly difficult to ascertain the number of sheep. Even in Lancashire, although assisted by a View of the Agriculture of the county, and by a Report made to the Lord Lieutenant, in August 1803, which ought to be correct, it is almost impossible to reconcile the accounts with each other, or with the general circumstances of the district. It is universally allowed, that the stock of sheep is small and ill attended; and yet we are told, that "upon the high commons there are not more than four or five per acre, but that some inclosed land will fatten seven or eight." It is not indeed asserted, that this number is actually kept upon all the lands of the county, or that it may be taken as the average stock; but it seems to indicate a number of sheep so large as to be totally inconsistent with every other account. On the contrary, the return of stock made by the order of government, in 1803, includes no more than eighty thousand nine hundred and seventy sheep. Such statements as this, when made in national exigences, are a disgrace to the persons who draw them up, and are better calculated to mislead than to inform. From the best accounts which I have seen, the stock may be estimated at nearly one sheep upon three

acres, and the average fleece at three pounds and a half; so that three hundred and ten thousand sheep are sustained upon nine hundred and fifty two thousand acres, which, according to the prescribed rule, we take as the extent of the county, and the whole quantity of wool which they yield is four thousand five hundred and twenty packs. This is wrought in the manufactures of the county, and in those of Yorkshire. It is very dirty, coarse, and kempy; the greater part of it possesses all the bad properties of that kind, which is produced by the neglected mountain sheep. In some parts the lambs are shorn; and most of the full-grown sheep, at the close of autumn, are smeared with a quantity of tar mingled with grease. One custom, which prevails here, is well worthy the attention of shepherds in general, since it not only saves a great proportion of wool, but in many cases renders the fleece more valuable. Instead of the common pitch-brand a permanent mark is fixed upon the ear of the sheep; and though the wool-growers of this district are usually represented as being careless both of their stock and their fleeces, they assign for their conduct this very judicious reason, "we observe that the common mode of branding spoils the wool." The fleeces are weighed here by the stone; but it varies from sixteen pounds to fourteen, and even to twelve an a half.

The extent of Yorkshire creates some confusion in the accounts of its rural concerns; to avoid this as much as possible, we will describe separately the wool of the three Ridings, into which the county is divided.

The southern and eastern parts of the West-Riding contain a large quantity of good land, much of it a strong loam, some light and sandy tracts, but no chalk, nor any other soil injurious to the staple. The other part consists of a long range of lofty hills, on which the soil is commonly thin and sandy, or wet and peaty; but these eminences are intersected by narrow valleys, whose pastures may be compared with some of the richest in the kingdom. On the low lands of this district we meet with several varieties of sheep; a horned race, which bears evident marks of having derived its origin from the mountain breed, but improved by crossing it with another family, without horns and having white faces; a second sort, in which may be traced evident symptoms of the Dishley blood, mingled with the native stock; a third, in which the features of the Cheviot race are discernible; and some betraying no ambiguity in their characteristic marks, but derived from the genuine stock of Northumberland, Lincoln, and Leicester. In these more fertile parts of the Riding, the stock amounts to about four sheep on seven acres; and perhaps the average fleece may reach four pounds and a half. The wool of this part of Yorkshire is very various, some of it is a great deal longer, harder, or more elastic than the rest; but little of it is fine, or so clean as it might be made; and the ultimate market for it is almost at home.

Upon the hills of this Riding, the sheep are of the mountain breed, similar to that which was described, when speaking of Derbyshire, but upon the moors of Penistone it assumes softened features, and exhibits strong proofs of cultivation. The animal

there is smaller than the breed generally is, has a spotted face and legs, bearing also a finer stapled fleece. The attention now paid to it upon these elevated pastures promises to improve it still farther, and with pleasure we observe that prizes have been gained by stock, which was reared upon the mountains. Indeed attention to sheep is a most natural employment in Yorkshire; for there is the seat of the most extensive and important woollen manufacture in the United Kingdoms. Yet from the actual state of its native flocks, and of those in the neighbouring counties, some persons may be induced to ask whether, in a preceding section, too much influence was not attributed to manufactures in the improvement of wool; and how it comes to pass that fleeces in the West Riding of Yorkshire, are found in a much worse state than in most other parts of the country? We reply, that this is naturally a very poor district; that its farmers, most of whom are also manufacturers, occupy only small quantities of land, to which is generally annexed an extensive right of common, the perpetual bane of agricultural improvement; that a spirit of speculation has but lately been excited among wool-growers; and that the manufacture for several centuries demanded only the coarser kinds of wool. When the fabrication of finer cloths was introduced, supplies of the raw material were obtained from a distance; and the demand for coarse wool continuing in full force, conspired with the general temper of the shepherds of those times to leave the flocks in this part of the country unaltered.

Towards the southern point of the hilly district sheep are numerous, but proceeding northward from Penistone, all the cultivated land is for a con-

considerable distance occupied by manufacturers, and the population is too great to admit of a large production of wool. On the uncultivated tracts sheep are found, but they are poor rough animals; a few years ago they were almost universally of the mountain breed in its worst shape, but more attention is now paid both to the carcase and the fleece; or rather the sheep being purchased from other parts of the country, and not bred upon the commons which they graze, their proprietor found a better stock than usual at market, and was thus constrained to introduce it. The few sheep, which are found upon the best soils in the neighbourhood of large towns, are of very different descriptions, being generally brought from a distance already fattened and waiting only for slaughter. There are however some exceptions to this, a few breeding flocks are kept, and one in the neighbourhood of Leeds deserves attention. About three years since, a gentleman well known as a woolstapler, brought from the county of Norfolk a flock of polled and grey-faced sheep. He placed them upon rich grazing land, a very different pasture from their native heaths, and attended them with no greater care than he would have done the inferior native animals of the county. They have been shorn twice, and I am assured by Mr. Motley, the proprietor, whose knowledge of wool no person will venture to dispute, that their fleeces the first year were as excellent as they could possibly have been if the flock had not changed its pasture; and that this year (1805) their wool is by no means degenerated, but if any alteration has taken place, it is rather improved. The animals are quiet in their pasture, appear healthy, feed kindly, and are prolific. I mention these particulars because they

they show that neither the climate nor the richest pastures of this part of England are unsuitable to the production of the finest fleeces. The breed from which these sheep are selected, it is well known ranks high as any for lightness of bone, quantity of mutton, and the delicacy of its flavour; for close feeding and a hardy constitution. Yet the lambs which it produces, esteemed by the butcher, are every year, in several parts of the kingdom, consigned in numbers to the knife. If it be of any importance to improve the fleeces of our country, and to mend the stock, every lamb possessing any superior quality, which is thus wantonly slaughtered, is a public loss.

Beyond the overwhelming influence of population sheep again appear, but have not received the same degree of improvement on the northern as upon the southern moors. In the country about Settle however we find a rather large sheep, with white face and legs, and which produces fine wool. It has been compared by some to the Dorset race; but it is not probable, that a few isolated flocks should have derived their origin from such distant pastures, and have been preserved with unremitting care, in so wild a country, from the contamination of the baser sort. They are most probably a branch of some white faced breed in the neighbourhood, or the remains of an ancient stock. Among the mountains of Scotland we shall frequently have occasion to remark similar instances, where the old breed is not entirely expelled by the prevalence of a more modern and fashionable race. When all the circumstances which attend the mode of farming, the existence of manufactures and extreme population, the pasture and the climate, are considered, we cannot estimate the stock of this part of the Riding at more than

than one sheep to eight acres of land. The average fleece is about three pounds and a half. We conclude therefore that the produce of the whole Riding stands thus, nearly five thousand packs of wool are obtained from two hundred sixty one thousand seven hundred sheep, and from four hundred fifty eight thousand productive acres; and also, seventeen hundred and seventy packs are afforded by one hundred twenty one thousand four hundred sheep, which feed upon nine hundred seventy one thousand two hundred and fifty acres. A large proportion of the wool is very dirty; some fleeces are sold in the unwashed state; and the whole of them are weighed by the stone, but it consists in some places of fourteen pounds, in others of fifteen, of sixteen, and even of seventeen. It is scarcely necessary to observe, that all the wool produced here is wrought at home.

The features of the East Riding differ much from those of the West. In the long-wool district of Lincolnshire the produce of Holderness was noticed; the other part of the Riding consists chiefly of the Wolds of York, and the level tract which extends from the foot of them westward. These Wolds, as the name commonly indicates, form an elevated tract of land destitute of wood, and affording fit pasture for sheep. Here we meet with extensive plains, and the hills are intersected with deep valleys. Throughout the whole of that part of the Riding which produces short wool, the soil is mostly of a gravelly or sandy kind; for even the chalk which forms the basis of the hills is generally covered sufficiently to prevent any pernicious influence upon the fleece. Sometimes the cretous substance rises to the surface, and must then produce its peculiar effect upon

upon the staple. The number of sheep in this part of the district is large, amounting, according to the accounts of farms, to thirty three upon forty nine acres; and each of their fleeces weighs nearly five pounds. In general the wool, though long, is not fit for the comb, and that grown upon the Wolds is sometimes white without the clear lusture which betokens an healthy state; its staples are often detached, or single, and its pile is straight and elastic. From four hundred and fifty four thousand seven hundred acres, the quantity of wool is nearly six thousand four hundred packs. The sheep, which yield it, are three hundred and six thousand two hundred and forty. Perhaps this number is estimated rather too high, as about York the stock sometimes amounts to no more than one sheep upon nine acres, and it it not easy to ascertain how far the system of farming prevails, which reduces the average so greatly. This also is a district well calculated for the production of fine wool. It resembles the Downs of Sussex in general appearance, soil, elevation, and exposure to the neighbouring sea; and when compared, in reference to its sheep, with the Cotteswold hills, those of Wiltshire and of Sussex, it shows how much in the culture of wool depends upon the breed of the stock, and how little upon the nature of the pasture.

The North Riding of this county contains two distinct clusters of mountains, separated from each other by the Vale of York, a rich and highly cultivated tract, and in almost every part of it the soil is suited to the properties of a good fleece. The Eastern Moorlands, a bleak and barren country, contain some contracted vales, in which the climate is favourable to agriculture; but upon the hills are tracts incumbered

ed with large flat stones, or rendered impassable by the deep and dangerous morass. Sheep here are usually small, have black faces and legs, or, when mingled with the lowland breeds, spotted ones, and in other respects they bear the distinguishing features of that race which inhabits most of the northern hills. Their fleeces are open, loose, and coarse, especially that part of them which was produced upon the buttocks of the animal, and the pile is frequently mingled with brown or grey hair. The average stock is stated at one sheep to ten acres; the fleece varies from three to four pounds; the quantity of wool produced is almost six hundred packs; and the extent of land amounts to two hundred ninety eight thousand six hundred acres. We deduct nothing here, because the region is almost destitute of wood, roads, streams and buildings.

The Western Moorlands form a part of that range of mountains, which was first noticed in Staffordshire. Here however the soil is more than usually productive, for the hills are composed of limestone. Their surface produces a short and sweet grass, and affords good pasturage to sheep. Some of the Dales, which proceed far among the mountains, are exceedingly fruitful. They are the seat of a worsted manufacture, of good husbandry, and the pasture of an improved race of sheep; one which has horns, white faces and legs, and bears a valuable coat. Upon the hills the mountain breed is almost the only kind; but it possesses a few distinguishing marks, the most remarkable being a black spot upon the neck. The fleece is loose, dry, and coarse. Although the flocks are said to be numerous in this part of the Riding, it is not probable that the average stock will amount to more than a sheep upon five acres.

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We adopt the measurement of Mr. Tuke, and estimate the land at almost three hundred and seventeen thousand acres, deducting from it the usual eighth. Since the average fleece is about three pounds, the result is fifty five thousand four hundred sheep, and almost seven hundred packs of wool.

Between these two rough and boisterous districts lies the Vale of York, a tract remarkable for its fertility. Here the sheep, particularly those which graze to the West of the Swale, are greatly improved by the combination of the Teeswater, the Northumberland and the Leicestershire breeds. From the best judgment I can form of the stock, we may take the number of sheep at one to two acres. They amount to two hundred and eighty thousand; the average fleece to six pounds; and the total weight of wool to four thousand six hundred and sixty packs.

But upon these points there are few districts in which it is so difficult to obtain satisfaction. When great pains have been taken to render the statements correct, they sometimes remain dubious, because the data from which they are deduced, are too general. Upon the whole, sheep in almost every part of Yorkshire are more attended to than formerly, they possess a better form, and produce a more valuable fleece. The custom of smearing them greatly prevails, and is often not only managed with dexterity, but adopted with considerable effect. The enterprizing farmer who shall introduce a breed, which supplies its fleece with a larger quantity of yolk, will probably find no occasion for the dirty mixture. In the North Riding the growers of short wool seek their market for it in the West; but the weight they make use of

in ascertaining the quantity, is singularly irregular. 'Tis always called a stone; but it is quoted in five different forms, viz. sixteen pounds four ounces, sixteen pounds twelve ounces, seventeen pounds and a half, eighteen, and nineteen pounds. Of this difference in the standard weight of wool, the growers sometimes complain, but have not either resolution or unanimity enough to correct it.

In Westmoreland the breed of sheep is of the mountain kind. Upon the more elevated farms it has long remained unaltered, but the flocks of the lower parts of the county have been crossed with the Leicester and the Lincoln varieties; perhaps more frequently with the mingled race which prevails in the Vale of York. The quantity of low land contained in the county, and which lies chiefly in the northern and central parts, but intersected by extensive commons, may be about one hundred and eighty thousand acres. The western side is very mountainous and rocky, but the verdure, which generally covers it, shows that even this pasture is well adapted to sheep; and the narrow vales are sometimes rich, to luxuriance. The statements of stock, which have been given, are so extravagant as to convince those, who have only the slightest notions of agriculture, that a very extensive common right is annexed to the farms, but not included in the measure of them. This circumstance renders it necessary, that we should calculate the number of sheep only from general facts; and the similarity of this county to Cumberland, both in its furface and mode of farming, induces me to take the stock at the same rate in both districts. Farms therefore, upon the low lands, and without the aid of commons, are supposed to

maintain about half a sheep per acre, but upon the mountains not more than half that proportion. Four hundred thirty one thousand two hundred acres then, are stocked with two hundred twenty three thousand seven hundred sheep, which afford three thousand two hundred and sixty packs of fleeces, at three pounds and a half to each. The wool from the mountain sheep is as usual coarse and hairy, nor can that which is obtained from the mixed breeds boast of very superior qualities; the produce of the Silverdale seems to be the best. Here the sheep are smeared very heavily; a gallon of tar, and sixteen pounds of grease being applied to thirty five sheep. The pile is wrought chiefly at home, but the surplus, that which is not wanted by the manufacturers of Kendall, is consumed in Yorkshire.

Cumberland is properly described as a mountainous country, but in the southern part alone the eminences rise above the line of useful cultivation. Sheep are kept even upon the highest of them during the summer months, but are driven in the winter to better pastures. From this, and some other circumstances, mentioned concerning the system of sheep farming adopted here, more attention seems to be paid to the animal than we have observed in several other parts of the kingdom where the surface is equally rough, elevated in a high degree, and where the mountains consist of any thing but limestone, or chalk. Upon the highest pastures of Cumberland, the mountain breed is almost the only kind of sheep to be found, while the lower lands are occupied by a more favourite sort, distinguished by their speckled faces, which denote that they have deduced their origin from a mingled blood. The Herdwicks also,

also, occupying a tract of the mountains in the southern point of the county, are a distinct breed, which have spotted faces, but no horns, and perhaps may have contributed to alter the stock of the better farms. These sheep seem to be the remnant of some old family, which existed in Cumberland before the breed of Scotland had diffused itself so far to the southward. The Herdwicks still produce a superior pile, free from those kemps which always debase the fleece of the mountain sheep. When the stock of the low land is estimated without common right, it amounts to nineteen sheep upon forty acres, and we cannot suppose that the climate of the Fells, their herbage, or system of farming, is adapted to support more than one half the number on an equal quantity of land. Dr. Parry, indeed, has estimated that the uncultivated part of Cumberland may sustain two sheep upon every acre of ground; and his opinion is supported by a conjecture of Messrs. Bailey and Culley, who say that the forest of Skiddaw produces about threepence per acre, by keeping upon that extent of ground a single sheep; and that if the wastes were improved, and laid down in grass, "they might support one sheep per acre more than they do at present." I am not farmer enough to form an opinion upon the effect of bringing such exposed land to a state of cultivation; yet I cannot help thinking that these gentlemen greatly over-rate the present stock. I should rather suppose, that in Cumberland there must be at least two hundred thousand acres, which do not support more than fifty thousand sheep; and if we estimate the stock in the remainder of the district at nearly half a sheep per acre, it follows, that this division of the kingdom, which contains almost eight

hundred and fifty seven thousand productive acres, maintains three hundred seventy eight thousand four hundred sheep. It produces about five thousand nine hundred packs of wool; for the average fleece weighs nearly three pounds and three quarters.

One third of the land included in the Bishopric of Durham has been noticed before, in the Teeswater District; and though a proportion of the remainder produces a staple above the common length of carding wool, yet little of it, I believe, is wrought upon the comb. The fleeces of this part of the kingdom appear, in general, to have a good colour, and a free open staple, not fine, but destitute of kemps. A few small, ill-bred sheep have been observed upon the commons, whose coats were thin and ragged. They occupy the north-eastern part of the county, but perhaps do not extend themselves over any considerable space. To the East of the county town the land is high, rises into lofty swells, and affords a good pasturage for flocks. These open Downs are not covered with ling or heath, as the mountains of the West are, but furnish grass to their summits. At a distance they appear as though the soil consisted either of white limestone or chalk. Such pastures are evidently suited to small sheep, but that part of the English Appennines, which passes through the other extremity of the county, is doubtless stocked with the common heath sheep of the neighbourhood. In Durham therefore we should expect to meet with some variety among the fleeces. Those which I have seen were chiefly in the hands of Felmongers, and had been too generally collected from the lower pastures, to enable me to form an opinion respecting the produce of the hills. These fleeces bore evident marks

marks of cultivation, and the sheep had been derived originally from the Teeswater breed, or perhaps from that mingled with some smaller race. We are not furnished with many accounts of the stock, but those imperfect ones, which have been procured, lead us to suppose that five sheep occupy thirteen acres; and the average fleece is nearly five pounds; so that this portion of Durham yields three thousand three hundred packs of wool, from one hundred and fifty nine thousand four hundred sheep, and from four hundred fourteen thousand four hundred acres. The average fleece here, including the produce of the whole county, has been estimated at seven pounds; so that one of five is probably smaller than the inferior kind of land really produces.

Through the mountains of Northumberland we still trace the rough and black-faced heath sheep, producing the same sort of hairy coat as in other places. But from the river Reed to the Cheviot hill, a better race occupies the country. The greenness of the pastures, in this part of Northumberland, has conspired with the spirit of agricultural enterprize, to introduce one of the most valuable varieties of this useful animal. The Cheviot breed of sheep is a polled one, and in general has white faces and legs. The spots, which formerly appeared upon them more commonly than they do at present, prove that the race is not entirely destitute of Scottish blood. Most probably the flocks were gradually formed to their present excellency by a selection from the old breed, which inhabited the lower country, and by its combination with the heath sheep. The staple of the Cheviot fleece is short and valuable, its pile is remarkably clear and soft. The existence of such a race, in the

immediate neighbourhood of the worst flocks in the kingdom, and upon mountains naturally moist and stormy, is a noble triumph of agricultural skill. It shows us what may done in the improvement of British wool, even in situations the most unfavourable, and requires our attention to its remaining defects. A large proportion of the pile in Northumberland is still coarse, and the whole of it will admit of amelioration; it may be rendered both finer and more uniform. On the lower grounds we find also a polled breed called Mugs, having white faces and legs, but know not when it was introduced, nor whence it came; it seems to have borne some relation to the Teeswater breed, but is now greatly altered by the influence of Dishley rams. The fleeces produced by this kind of sheep weigh about seven pounds; and their staple, as is common where the Bakewell blood prevails, measures from six to fourteen inches. It bears some resemblance to the wool of Leicestershire, but is much softer, and better adapted, in some other respects, to the fabrication of woollen cloth than the pile from the midland counties. Indeed softness is the characteristic of the Northumberland fleeces, and gives a silky texture to cloth which is scarcely to be imitated by the use of any other wool. In point of softness I believe these fleeces stand unrivalled among the produce of Britain, and the sheep which afford them are certainly more valuable than the common race in the North of England; they would thrive as well upon many other pastures as those of their native county. Here the practice of laying the wool with a dirty mixture of tar and butter was generally adopted; but the late attention to sheep farming, and the judicious experiments

periments which have been made in this angle of the kingdom, have shown that smearing is not, as was supposed, absolutely necessary either to the health of the flock, or the good quality of its fleeces Among farmers who reside in the lower situations, and who keep flocks of the long-wooled sheep, the practice is almost laid aside; and many shepherds even upon the hills have omitted it without detriment to the staple. Among those who retain the custom, a gallon of tar and twelve pounds of butter are expended upon twenty four sheep; and the quantity remaining upon the fleece at the time of shearing is supposed to be about three quarters of a pound. When this is stated of the Cheviot sheep, whose fleece weighs about three pounds, the value of the white wool is to that of the smeared as five to four; when applied to fleeces of seven pound weight it is as ten to nine; and both these proportions agree very nearly with other accounts given of the weight of these wools. The mode however of washing even the white wool, in this part of the country, is by no means compleat; a large quantity of yolk is always left in the fleece, and some portion of dirt. It is desirable that wool should be sent to market in a better state. It has been observed that the climature of Northumberland affects the fleece very considerably; that in wet seasons it is coarser than usual, and that in fine clear weather, and long continued frosts, the pile becomes more attenuated.

In estimating the stock of other divisions of the kingdom, we have adhered to the extent given of them in Carey's Atlas; but of this county his measures are so palpably wrong as to induce us to take those of the Board of Agriculture, which gives as the exact quantity

quantity of land, one million two hundred sixty seven thousand and two hundred acres, from which, as usual, we deduct one eighth. Upon the summits of mountains the stock must be lighter than upon land better adapted for the pasture of sheep, and on this account some deduction must be made from the general stock of the county. This is discovered to be about one hundred and seventy nine sheep on two hundred and seventy seven acres; and if there be four hundred and fifty thousand supporting only one sheep on four acres, then we have for the produce of Northumberland twelve thousand three hundred and thirty packs of wool. They are yielded by five hundred thirty eight thousand sheep, whose average fleece is estimated at five pounds and a half. The greatest proportion of this wool is sent to Yorkshire; a part of it to Aberdeen and other places in Scotland; and the residue is wrought at home. Here the stone, by which the fleeces are weighed, consists of twenty four English pounds.

In Wales the sheep are singularly small animals, with horns, white faces and white legs. The family to which they belong, must have inhabited these mountains for many ages, and appears to have undergone fewer alterations than most other breeds in Britain. At present the flocks are in the most neglected state imaginable; for though their shepherds, perhaps their owners, sometimes attend them to the mountains in the summer season, living in ancient simplicity, yet the sheep exhibit few symptoms of attention, and almost the only care taken of them is intended to counteract the roving temper, for which this variety of the animal is remarkable.—The fleece is composed of short staples, with a fine

pile,

pile, but infested with kemps, or coarse hairs, beyond almost any other kind of wool. In a few instances however the influence of soils and manufactures is perceptible even in Wales. The wool of Anglesey has in one or two cases been altered, I will not say improved, by a ram from Leicestershire, but which, besides a superior length of staple, communicated to the hardy native flocks a troublesome and mortal disorder. The influence of the market at Welch Pool is discernible through the flocks of Montgomery; for by it they are rendered more numerous, and their fleeces more valuable; and the rich woody tract of Glamorgan can boast of a weighty fleece, procured from sheep which claim affinity to the Cotteswold race. But sheep are not the favorite stock in every part of the Principality; their roving disposition often renders them unsuitable for small inclosures, and the meanness of both their carcase and their fleece induces the proprietors of land to expect a larger profit from the Mona breed of cattle. Yet those who have been accustomed to hear, that in Wales sheep are numerous, to observe some of the counties distinguished by their multitude of flocks, will be surprised to find that five acres in North-Wales, according to the best accounts, are employed in the sustenance of a single sheep, but not exclusively of cattle. It must be observed, however, that no return is made of the number of sheep kept in Montgomeryshire, where they are most numerous, and that the markets of Bala and Pool, united with the consumption of wool for domestic purposes, require a larger stock. Making some allowance for these circumstances, according to the best information which I can obtain this part of the country supports six hundred

hundred eighty three thousand sheep ; produces almost five thousand seven hundred packs of wool ; and contains two millions and thirty five thousand acres. We have estimated the fleece at two pounds, because that is the general weight of it in the counties of Denbigh, Flint and Montgomery ; in Carnarvon and Merioneth it is something less; but in Anglesey it reaches two pounds and a half. Wool is sold by the stone of five pounds ; and the principal marts for it are the fairs of Llanrwst and Bangor.

The same small breed of sheep, which occupies the mountains of North Wales, extends itself through the southern division of the country. In general they are most numerous upon the hills ; and the counties of Radnor, Cardigan, and Pembroke are described as supporting the largest stock. Glamorgan has sometimes been distinguished for the superiority of its wooi, but in Radnor the fleece is " thick-haired, filthy and sandy." No particulars are given of the farms, by which we can conjecture the number of sheep maintained in the country, but it can scarcely surpass five hundred and seventy one thousand. The fleeces are reckoned at one pound and a half, and give as their total weight three thousand five hundred and seventy packs, which are the produce of nearly two millions two hundred and eighty five thousand acres. Wool is weighed in the county of Cardigan by the stone of twenty four pounds, in Carmarthenshire by that of eighteen ; and the prices, which have been sometimes mentioned as applying to fleeces produced in different parts of South Wales, and also in Carnarvonshire do not vary more than two per cent.

Throughout the whole Principality, wool is manu-

manufactured in the houses of those who grow it, and the consumption, for articles of dress and of furniture, must be very considerable; especially in the counties of Pembroke and Carmarthen. The people of both sexes are clothed in woollens, and most commonly wear a large quantity of them. In the North, females are generally seen in felt hats and large blue cloaks, those of the South are fond of exhibiting the various coloured borders of two or three petticoats; wear upon their shoulders a square piece of red cloth, and ride upon large pillow-like saddles, stuffed with wool. The manufactures also of Merioneth, Montgomery, and Brecknock, require a great supply, and derive it entirely from the native fleeces.

In the Isle of Man the native sheep are small and hardy, resembling those of Wales; when fat they weigh from five to eight pounds per quarter; produce a fleece of two pounds and a half; and are almost confined to the mountains. On the low grounds the race is derived from a mixture of the Scotch, the Irish, and the English breeds. It produces seven pounds of wool, from a carcase weighing twelve or eighteen pounds per quarter. In some secluded situations there is also the remnant of a breed which is now become scarce, being totally extinct, I believe, in England, and nearly so in Scotland. In this island it is called Laughton, is composed of small animals, and its colour is olive or that of Spanish snuff. No returns being given of the stock in this small portion of the British empire, we cannot ascertain the number of sheep, nor the quantity of wool; yet it was deemed necessary to notice these flocks to render the account of English fleeces complete.

SECTION V.

Concluding Remarks.

AFTER having read the preceding pages, few persons will think that we rated too low the average stock of sheep upon an acre in the short wool districts of England. In general it has been stated at the full quantity which the data of our calculation would admit of, and the result stands thus; two hundred and two thousand six hundred and thirty packs of fleeces, are procured from the backs of fourteen millions eight hundred fifty four thousand three hundred sheep, and from twenty eight millions four hundred and twelve thousand acres of land. But as the foregoing statements have not always been numerically correct, a table is subjoined, which shows at one view the produce of the counties arranged according to their respective districts; the number of acres in each, which are supposed to contribute toward the production of wool; the average quantity of stock, according to the best account which could be obtained; the number of sheep, deduced from these premises; and the average weight

weight of their fleeces. At the bottom are annexed some other results, which naturally flow from the statements, designed to save trouble to those, whose curiosity might prompt them to such investigations. Some of the particulars however require illustration.

The whole quantity of fleece-wool produced in England, according to the table, is three hundred thirty four thousand four hundred and thirty packs, of which rather more than one third is adapted to the comb; the remainder is wrought upon the card and fabricated into the different articles of woollen goods. But to this quantity of carding wool, obtained from fleeces naturally short, must be added that proportion of skin wool, which is not long enough to be employed in the manufacture of worsteds. This is the aggregate of several particulars specified in the table, and amounts to forty two thousand five hundred and fifty packs. It is obtained from the pelts of those sheep which die in the space of a year, either by the natural progress of disease, or by the hand of the butcher. In the View of Agriculture in Middlesex, a work sanctioned by the Board, it is supposed that the whole stock of sheep is composed of nearly fourteen ewes to twenty four others; that the former are killed at five years of age, the latter at three; and that the amount of those which die carrion, or by disease, is equal to one twentieth of those which pass under the knife. The table is estimated according to this rule; and the fleece is calculated at half the average one, because the number dead during the first half year, when the wool is short, is supposed to be equal to that in the last, when the pile is more completely grown. The quan-

tity however will not be found to correspond very precisely with the weight actually procured by the fellmongers, because in shearing fleeces a quantity of the pile is left upon the pelt, but in stripping the skins the wool is not only taken off completely, but with it a quantity of scurf, mingled also with a proportion of lime. The skin-wool is not usually found most plentiful where the stock of sheep is most heavy; for these animals when fat constantly succeed each other in a journey to the larger towns of the kingdom, are slaughtered there, and their pelts are commonly stripped in the neighbourhood. We do not therefore always expect to find the skin-wool of a district, similar to that which is shorn from its sheep. Thus in Lancashire the skin wool is often obtained from the flocks of Lincolnshire, while its native sheep are of a very different description; and in London may be found specimens of skin wool from most of the southern counties.

It is not by any means easy to ascertain the quan- of lamb's wool, because sheep-masters do not always shear the young ones. Persons who adopt the practice one year, perhaps will neglect it the next, on account of the unfavorableness of the season or the state of their flock. Lamb's wool also is not procured through the whole of those districts, where the practice of shearing the young animals is most generally adopted, for there are persons in each, and sometimes great numbers, who refuse to take a coat from sheep under a year old, since it preserves them from the rigours of the season, which, even with the best covering, they but ill endure. Amidst this uncertainty we can do little more than guess at the number of lambs which are shorn; the wool obtained

tained from them, I apprehend, does not amount to more than seven thousand eight hundred packs. It is supposed that the number of lambs yeaned every season is equal to that of the breeding ewes, for though multitudes do not produce a young one, yet perhaps as many others bring forth twins; and one fifth of the whole are said to be slaughtered. If their fleeces amount to eight ounces, on an average of the whole kingdom, they afford almost three thousand packs of wool. The pile of a lamb's fleece is very different from that of a full grown sheep. The wool is sometimes hairy; most commonly perfect, soft and fine, but the staple is scarcely yet formed, and though sometimes used in the manufacture of woollen cloth, it is commonly too short and loose to be wrought alone. The pile has not assumed that spring-like form which is so desirable in the full-grown fleece.

If we collect the several quantities of wool, which are obtained from the larger and the smaller sorts of sheep when living, and from their pelts when dead, and if we add to it, that which is procured from lambs under a year old, we find that the grand total of this substance produced in England and Wales, amounts to more than three hundred and ninety three thousand packs. It is procured from more than twenty six millions of wool-bearing quadrupeds, and from thirty two millions three hundred and fifty two thousand acres of ground.

The quantity of wool produced in England has often been estimated; and those who have employed themselves in attempting to ascertain it, have differed most widely in their calculations. It is not necessary to search into old records, for the general opinion of the present day is, that England and Wales produce about

six hundred thousand packs, and it is usually received without examination. I have not been able to discover upon what basis this conclusion rests; but it was formerly supposed that Great Britain produced that number of packs; and it seems probable, that some person, by a very easy mistake, has quoted the number as applicable to England alone, and the error has passed from one to another without being suspected or examined, until it has become an opinion so firmly settled as to form the basis of reasoning even in the House of Commons. Indeed the greatest mistakes, that have been made upon this subject, seem to arise from two sources, the assumption of six hundred thousand packs as the produce of England and Wales, and the different quantity of land which is assigned as the extent of the kingdom. Some having thought that it comprehends almost forty seven millions of acres, and others that it contains only thirty four millions. I have already said, that the extent which is adopted in these pages is taken from Cary's Atlas, and the reasons why I chose not to depart from that authority, except in cases of great and palpable error, have been given. If any mistake has arisen in the preceding statements from an unwarrantable deference to his opinions, the error may be easily corrected by the reader himself. No labour is necessary to show that those must be wrong who state the produce of the kingdom at six hundred thousand packs, and reason upon it as though the whole were fleece-wool. It will be fair to ask such, how many packs there are of the other kinds; or if the pelts and the lambs have produced no wool? Their own answer to such questions will prove the best refutation of their conjectures. Since the average stock of sheep upon an acre

of

of ground appears from the table to be nineteen thirty-second parts, and the stock, as estimated by farmers in round numbers, is only three fourths, we have reason to think, that the difference in the quantity of wool, is partly owing to the want of discrimination. Had they separated the pile into its different kinds, the accounts respecting the number of sheep would have corresponded much more exactly, than they do at present. But let it ever be recollected, that while the mistakes of others are pointed out, the author does not suppose that his statements are perfectly correct. On subjects of this kind, we can only form general opinions, and his are most likely to be accurate who collects facts with the most patient investigation, and reasons from them with the soundest judgment.

If the quantity of wool, annually produced in England and Wales, be so much smaller than has been commonly estimated, it seems desirable to ascertain whether it now increase or diminish; whether we may expect in future years a larger, or a less, supply. From circumstances, which have been mentioned, it appears that the number of lambs yeaned in the kingdom, is about seven millions; and that the slaughter of wool-bearing animals, of every description, amounts to that number, and an addition of a hundred and forty thousand; so that the stock is diminished at the rate of about two per cent. every year. I am not sufficiently acquainted with the details of grazing to assert, from my own knowledge, that the proportion of sheep killed, is exactly as it is stated here; but have been satisfied with information communicated by those, who are certainly much

better able to determine the point. Nor do I feel anxious, lest this diminution of sheep should prove detrimental to the woollen manufacture; because, though the flocks of England are not so numerous as formerly, yet those of Scotland and Ireland seem to be increasing in a rapid manner; and in proportion as the waste land of both countries is brought into a state of cultivation, it produces a more useful fleece. Even in England and Wales we have more than three millions of acres capable of being improved, and carrying a more numerous stock; we have two millions of sheep whose fleeces are scarcely wool, and which might be brought to contribute their share to support the woollen manufacture, and to increase the wealth of the country.

From the general view which we have taken, the English fleece appears susceptible of very great improvement. There are but few tracts of land, and these comparatively small ones, on which it has attained a moderate degree of perfection. Long-wool, though not possessed of all the excellent qualities which ought to be communicated to it, is in general, well adapted to those inferior worsted goods, in the manufacture of which it is used, and also to those coarser kinds of woollen articles, which require a long knap and are calculated to produce an extraordinary degree of warmth. But a very small quantity only of this pile, is applicable to superior articles; a more attenuated one might be produced, and would be found of great value. It must be observed with regret that, during the last hundred years, the manufacture of worsted goods has greatly declined. If it be desirable to revive it, care must be employed

to

to render them more thin, flexible, and soft; to give them a greater similitude to the fabrics of cotton, or of silk; to qualify them to endure the rivalry of the first of these articles both at home and abroad. But whoever examines the manner in which the manufacture of cotton and that of worsted are conducted, will not only observe a great difference in favour of one, but will almost despair of the revival of the other. In the worsted manufacture only small capitals are employed; no extensive works are constructed for carrying them on; the machines made use of, are simple and old; the masters in general have but little dead stock, and of course, a small stake in the country; the workmen are prejudiced in favour of old modes, jealous of innovation, always obstinate, and till their spirits were broken by distress, they were too commonly vain of their importance, captious, and turbulent. There is in this branch of manufacture but little speculation; and genius lies dormant. There are few articles made now which were not fabricated and in fashion the century before last. But in the manufacture of cotton every thing wears just the opposite appearance; there we observe large capitals, immense establishments, a highly speculative spirit, great confidence, and a combination of all the productions of modern genius. We notice a race of workmen also generally industrious, punctual, and contented; the articles which their looms produce are ever new, and ever varied. The effects which a flourishing manufacture produces, and those which result from a dispirited and dying trade, are obvious to every one, who can compare the state of Manchester with that of Norwich; of Glasgow with Sudbury; the county of Lancaster with

with Suffolk, or that of Renfrew with Northamptonshire.

The short wool of England is still in a wretched state, for although some noble efforts to improve it have excited emulation and activity, yet, when compared with what remains to be accomplished, but little has been already effected. When looking over the preceding table, we are surprised at the number of sheep in every district, which might be exchanged for a better stock; and with respect to their coats, no woolstapler, I am pursuaded, who has any general acquaintance with the English fleece, will think me extravagant when I conjecture that of the fifteen millions of short stapled ones, which the kingdom produces, there are not five hundred thousand which even border upon perfection. The southern districts, where most has been done to improve both the carcase and the coat of the sheep, contain at present but few flocks, which pretend to superior excellency. The wool of Norfolk, although greatly improved in general, is far inferior, not only to the best of piles, but also to many samples which have been produced even by the native sheep. The best cultivated fleece of Sussex has not yet been obtained from every flock which grazes upon the Downs, pastures most fit for the culture of wool. Nor has the Ryeland race of sheep, notwithstanding the superiority of its fleece, been allowed to retain possession of its ancient pastures. And though a few spirited individuals have combined with various English breeds the blood of the Spanish race, and by that means obtained a staple hitherto unequalled among English wools, yet those flocks are small, are widely dispersed, have not at present descended to the

hands

hands of common farmers, and their wool, compared with the whole produce of our soil, bears no greater proportion to it, than the parks of our nobility do to the extended fields occupied by untitled farmers. The whole race of Heath sheep must be banished from the northern counties, where they greatly abound, or must change the nature of their staple, before the wools of England can be pronounced only moderately good. Where they range the fleece is possitively a disgrace to the flocks, its shaggy staple is most fitted to the goat, to the ages of barbarism, and to countries where wool is of no estimation. Such animals are permitted to roam over the wide extended commons, in these mountainous districts, merely because their constitutions are hardy, and their mutton delicate. But are there no sheep to be procured with a constitution equally firm, with flesh as well marbled, and juices quite as palatable, whose fleeces are far superior? Did not the old breed of Scotland bear better wool, and was it unsuited to the pasture? Do not the mountains of Wales, as much exposed to moisture as those of Cumberland, produce a finer wool, and is not the shorter and fuller fleece of the Penistone moors, and of the Cheviot hills, obtained from sheep, which graze upon the very pastures of the black-faced, shaggy-coated breed? But if the carcases of these hairy animals do really possess qualities, which in goodness counterpoise the egregious defects of their fleeces, let farmers tolerate them still; yet let them show by judicious experiments, such as ought to convince the world, but especially those who are most interested in the improvement of flocks, that the excellencies attributed to the mountain breed are real, not imaginary, that they are peculiar, not common to any other

other race of sheep; that the execrable coat cannot be exchanged for a finer pile, without substantial injury; let them do this, lest strangers noticing defective fleeces should upbraid the shepherds, and deem the produce of their flocks a proof of ignorance or prejudice.

To give a more correct idea of the quality of English wool, especially to those who have no means of acquiring a complete knowledge of it, I have distributed the shorter fleeces into four classes; arranging them according to the fineness of the pile, without regard to any other circumstance. Those however, who are unacquainted with technical terms, which I shall avoid as much as possible, will perhaps find it necessary to refer to page 144, where a method of ascertaining the size of the hair is pointed out, which may be easily adopted. I have divided the classes agreeably to the measures there given of my own sorts; the lowest, or No. I. comprises those fleeces, whose pile, when sorted and weighed, will average some number less than seven hundred, No. II. averages eight hundred, No. III. one thousand, and No. IV. twelve hundred. Of the first of these kinds of short wool, England produces more than thirty one thousand packs; of the second ninety three thousand six hundred; of the third almost fifty three thousand five hundred; and of the fourth twenty four thousand five hundred.

These numbers perhaps are not perfectly accurate, for I have not sorted, or even seen, the wool of every county; and my opinion of the pile, upon which the whole arrangement depends, may be very different from that which is entertained by others. Several

ral of the counties also might have been placed in different classes without any perceptible error, for the quality of their pile is dubious, and falls between the standard measures of two of them. Those districts, to which an asterism is affixed, produce many fleeces, which ought to have been placed in a lower order if the arrangement had been made without reference to the general produce. If correct enough, however, for general purposes it follows that England produces only a very small quantity of fine wool, far too small for the consumption of the country, and that she depends for a supply upon the political good humour of her neighbours: how long they may be disposed to assist her no one can determine. To become her own friend would certainly be wise: but it is not possible to compare the average quality of her own wool with the value of the pile which is procured from foreigners, or even with some detached parcels produced at home, without being convinced of our national negligence and folly. These perhaps may be deemed harsh and improper terms, but it is criminal to use feeble language, in cases were the welfare of our country is concerned.

Nor can our folly and negligence be palliated by remarking, that though we are too indifferent respecting the fleece, great attention is paid to the carcase; for in this climate woollen clothing, if not necessary to our subsistence, is at least essential to our comfort; and because a large number of our poor depend upon the manufacture of superfine cloth for their support. The fleece moreover may be cultivated at little or no expence. I never yet heard that a given quantity of coarse wool required less nutriment than a similar weight of the finest pile; nor that a hairy fleece

fleece, of little value, injured the carcase more than one, for which the farmer might obtain the best of prices. If I am mistaken here, graziers must impute the error to ignorance of their particular line of business; but until the mistake be clearly pointed out it is impossible to justify the conduct of those, who produce upon dry and thin soils a bristly and a shaggy staple.

Only two modes of improving fleeces have yet been adopted. One consists in selecting those lambs for slaughter, which have the least valuable coat; the other in bringing into the flock male sheep of the most approved breeds, in order that their progeny may perpetuate their best pecularities. But flocks might be amended much more rapidly if, in addition to these common methods, a kind of barter in lambs were adopted between two districts situated near to each other, one of them possessing a superior, and the other a less valuable sheep. From the best flocks, a great number of lambs are yearly slaughtered without any regard to their good qualities, while, perhaps at only a short distance, a multitude of others are preserved without any attention to the badness of their coats. If these could be exchanged in such a manner, that only the good ones should be preserved, and the inferior kinds alone should be sent to the shambles, the flocks of Britain would become every year more valuable; a few seasons would be sufficient to dispossess the least cultivated breeds of their present pastures. It were easy to point out parts of the kingdom where, within the distance of a few miles, the fleeces differ in value full fifty per cent. where the pastures, upon which the worst are produced, are equally well suited to a more valuable kind

kind; and where the quantity of the inferior pile, afforded by a single sheep, by no means counterbalances the difference in price. Some persons perhaps may think this idea of transferring the best lambs of one district to the pastures of another, and the worst of this latter region to serve as a supply for the shambles of the first, more than chimerical. They perhaps may represent in forcible language, the difficulty of inducing butchers to purchase only those lambs for slaughter which have the worst coats; of convincing the wool-growers that it is their interest to provide young stock from a distance, rather than to rear it for themselves; to give for it a greater price then can be obtained for their own lambs; and to judge of the value of these animals as well by their fleece, as their form and their flesh. These objections, however, would vanish from before the example of wool-growers of property, influence, and spirit; and the measure which we recommend, is nothing more than adopting, with respect to wool, a principle upon which graziers have long acted in reference to the carcase. Something like this transfer of stock must take place, should the supply of fine wool from the Continent suddenly fail us: a circumstance by no means improbable in the present state of Europe. Every man of observation, who has turned his attention to this subject, must perceive, I think, that in Britain we are disposed to wear superfine cloth, even though the price of it were much higher than it is at present. The wealth, the mode of living, the prosperity of the country render the consumer of fine cloth almost indifferent to the sum which it costs him; nor could any scarcity of the raw material, unless attended with some political and

general misfortune, render the majority of our men of affluence contented with coarser coats than they wear at present. Their willingness to purchase the manufactured article at higher prices, should act powerfully upon the wool-grower, and compel him to cultivate a superior pile. It is an unpopular theme, but, after calm and deliberate thought, I confess it appears to me desirable that the growth of superfine wool should be encouraged at home that it should be encouraged even by imposts upon the article of foreign production; not indeed so heavy as check the importation, but considerable enough to operate favourably upon the British fleece.

From what has been said of the quality of English wool, the stapler will be at no loss to ascertain its value, and the table, No. II. will enable others also to form a correct opinion. From this it appears, that the average quality of short wool, both in the fleece, and when combined with the skin-wool, which is obtained from the pelts of those small animals whose coat is suited only to the fabrication of woollen goods, amounts to eight hundred and eighty five; but that when combined with the portion of short wool obtained by the slaughter of the long-stapled breed of sheep, it must be expressed by the number, eight hundred seventy one; or, according to former explanations, the diameter of the hair being multiplied by that number, will equal the space of an inch. This quality of wool cannot be estimated at more than fifteen pounds per pack, which gives us for the total value of short wool produced in England, almost three millions seven hundred thousand pounds. In the staple of Long wool we observe a remarkable similiarity of pile, and there-

therefore any person may form an idea of its value by the price at which it sells; being taken at thirteen pence per pound, the amount is almost one million eight hundred thousand pounds sterling. The lamb's wool, though of uncertain value, we state at ten pounds per pack. The whole produce therefore of England, consisting of fleece wool, and that obtained from pelts, and from lambs, is worth more than five millions and a half of money. It is not necessary, I presume, to point out how far this differs from other estimates, because we can compare it only with those whose basis is conjecture. The data from which we reason having been stated, and every step of the process explained, they are open to correction; but conclusions thus drawn are generally deemed more worthy of attention, than the bare suppositions even of the most judicious. As an article of sale, wool is very properly compared with the value of money, for this is the measure of its estimation with the grower, and the manufacturer; but it derives its intrinsic worth from being applied to human comfort, and the elegance of life; its real value therefore varies with the condition, and the capricious fashions of the consumers. Considered as a material for manufacture, as the means of employing a great number of workmen, and yielding them support; as occupying large capitals and considerable establishments; as furnishing supplies for home consumption, which, if not obtained from our native soil, must be procured from abroad, as furnishing one of the most valuable and important articles of export, no price can represent it. The enlightened politician alone, whose capacious mind comprehends the condition of different ranks of people in various countries, can con-

ceive its importance; but we pretend not to the possession of such knowledge, and subjects like these are more immediately connected with the manufacture of wool, than its production.

But little need be said respecting the price of wool; like that of all other articles, it depends chiefly upon the demand, and the quantity which can be obtained to supply it. If this demand arose solely from the consumption of woollens among ourseleves, and if the raw material could not be obtained from other countries, the price would depend entirely upon the opinion, which the people entertained of the importance of woollen goods to their comfort, more especially if the consumption of the manufactures were equal to the annual produce. But since the demand for woollens is very intimately connected with foreign commerce, since the material also can be obtained from abroad, it is evident, that the price of English wool, and English goods, must depend very much upon the state of other countries, their political relations, their wealth, their manufactures, and their laws; upon the ease with which their wool can be imported here, upon the facility with which they receive our commodities. As these circumstances are perpetually varying, both the manufacturer and the merchant are obliged to keep a watchful eye upon them, to anticipate, as much as possible, the fluctuations of commerce which these changes indicate, and to regulate, with unceasing prudence, both their purchases and their sales. Hence we should suppose that the demand for wool would constantly vary, and that the price of it would experience correspondent fluctuations. Yet it has often been observed, that the depression of the woollen manufacture

facture has but little effect upon the price of the material. This is owing, I conceive, to so large a proportion of woollen articles being consumed at home, and in the colonies; to the close connection which subsists between this country and foreign ones; and to our decided maritime superiority, by which the passage to every market is kept open, and rendered secure. The demand for woollen goods at home, in our distant possessions, and in the United States of America, is almost sufficient to take off the whole produce of our looms; yet that portion of it which is sent to European countries gives a spirit to our commerce, which it would not otherwise enjoy, and serves many important purposes in the general balance of trade. We cannot indeed suppose, as some do, that foreigners are dependant upon England for a supply of woollen goods; yet it has often been observed, that when obstacles have been interposed to our commerce, the people of other countries have assisted in removing impediments, or in rendering them ineffectual; hence it comes to pass that though the demands of trade be not always regular, yet in the course of months they become sufficiently large to require our whole surplus of woollen articles, and at every returning season leave only a small stock of the manufactured, or of the raw material. Wool moreover is an article of annual production; the quantity of the best kinds which can be obtained, is always limited; but the consumption is daily, and the inclinations of people, both at home and abroad, tend to increase it. The immense establishments for conducting the manufacture, and the general use of modern machinery, require a rapid and regular supply of wool; they are fully sufficient to consume the

whole produce of the kingdom, and cannot be converted to other purposes without much expence; they cannot remain inactive without considerable loss. Hence the fleece is generally considered as a safe article of speculation, and employs at one season of the year, a larger capital than would be embarked in more precarious concerns. The quantity of money in the market, therefore, always operates with peculiar influence upon the price of wool; if rising it urges its course, and prevents its fall when the manufacture labours under temporary depression. And should difficulties continue longer than was expected, and a surplus of wool be left upon hand at the return of summer, even then it is not a perishable article; but with proper care may be kept back from market, and rather improve in its condition than grow worse. Such as these are some of the principal circumstances, which tend to counteract the natural effect of a variation in the demand for woollen goods; their influence has frequently been observed, and their operation though silent, is generally irresistable.

Many persons have formed their opinion of the demand for wool, and regulated their notions of its value, by the quantity of cloth milled in the space of a year, in the West-Riding of Yorkshire, a return of it being made to the sessions at Pontefract in the spring. But for several reasons, this is a very fallacious mode of judging. These returns give no general view of the state of trade; they mention only the number of yards manufactured, and take no notice of the weight of wool; they do not distinguish between the goods made from the pile of British, and of foreign growth; they relate only to one kind of woollen articles; and refer to the West-Riding of Yorkshire alone.

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The slightest acquaintance with the woollen manufacures of England, and the materials used in them, must convince any one how unreasonable it is to draw general deductions from such premises as these. It will show that persons, who regulate their conduct by opinions formed in this manner, must be perpetually in danger of acting wrong.

A connection exists between the price of wool, and the value of land. As the rents of farms, and the expences of management increase, it is evident that all the produce must sell for more money, than it did when the disbursements of the agriculturist were less heavy; and it is only reasonable to suppose that the fleece will bear its proportionate advance. The introduction of foreign wools is always attended with some difficulty; they are encumbered with heavy expences, and can operate as a check upon the price of British fleeces, only when purchased at a low rate, when the quantity actually brought in is very considerable, and when those who hold it are disposed to sell at inferior prices. The pile of English growth therefore always possesses a considerable advantage, and will most probably continue to increase in value at the same rate as do the other articles of native produce. Judicious farmers also have observed, that by attention and care they can procure from their sheep either a larger or a smaller quantity of wool; and that whatever they sacrifice in the fleece, they unvariably obtain from the carcase. The price of wool, they assure us, must bear some relation to that of mutton, for since their profits are made up of the joint produce, arising both from the carcase and the fleece, they will cultivate the most sedulously that only which leaves them

them the largest share of advantage. The culture of sheep, likewise, is affected by the same law, and wheresoever it appears most advantageous to adopt the dairy system of husbandry, or to graze cattle, the produce of wool must be small.

During the last seventy years, many have thought that the price of wool was regulated entirely by the arbitrary will of the purchasers; and some have amused themselves by writing long and bitter complaints against the combination of staplers, and the monopoly granted to manufacturers. To show that the grievances of wool-growers have in them something real Smith wrote his Memoirs, a dry and heavy work, but containing much historical information. The author, however, betrays so much ignorance of trade, such a want of information respecting the quality, and the use of the British fleece; and is so prejudiced in favour of a party, that we cannot join in the extravagant admiration of an agriculturist and say, "that the work ought to be printed in letters of gold." We wonder too that intelligent and liberal minded men should be so far influenced as to retail his invective, and ask whether any person may not employ his capital either as a stapler, a manufacturer, or a merchant? Whether those who have long purchased wool do not value their connections among the farmers at a high rate? Are not all wool-buyers jealous lest others should prevent them from collecting their usual quantity? Do not farmers take more pains to sell their fleeces than any other article which land produces? And is not every stapler to whom wool is offered eager to bargain, though almost certain that it is under a promise to another person? Does not the purchaser often enjoin secrecy with respect to the price? Does not he fre-

frequently promise that though the bargain be made at one sum he will give a larger price? Does not he even leave the price to be settled at some future period, and engage that he will give as much money as any wool sells for in the parish where the grower resides? Yea is it an uncommon case that a farmer should expect, and obtain, something extra for the wool which he sold in a former year, even though he has no legal claim upon the stapler who bought it, nor even the shadow of a promise from him to that effect? Are these symptoms of combination, or are they proofs of rivalry? What would farmers think of them in reference to any other article than wool; in reference to their corn, their cattle, their horses, their rents, or to bargains in the public funds? What must every person, who is accustomed to the routine of business, think of wool sold under such circumstances as these? Surely he would never conjecture "that it does not obtain a fair price!" But combination does really exist; the growers have among themselves numerous meetings, convened by public advertisement, for the express purpose of raising the price of wool*; information is communicated to them from every part of the kingdom, and the result of their deliberations is transmitted to the most distant farms. Sensible men, however, will not complain of such conduct, because it is impossible, by any means whatsoever, to raise the price of wool above its value, when taken upon an average of years. Depending upon principles wholly unconnected with public meetings, the value of the article must increase so long as the growth, and the import of

* Vid. the writings of Arthur Young and other Agriculturists.

of the kingdom are not equal to the demand; but the effects which a surplus would produce, must soon be perceived, and no combination can withstand them. Yet it should be recollected that we manufacture annually a large surplus of goods; that these must be disposed of according to their value in other countries; and if this be lower than the price at home, the consequence is known and certain. In the woollen trade it behoves the stapler, the clothier, and the merchant to look beyond the limits of Britain, and to regulate their conduct by enlarged principles. We are not advocates for a depressed yeomanry, but rejoice when the produce of land is sufficiently high to reward their skill, and to make a reasonable return for the employment of capital; when it is low enough to allow the poor the comforts, and the decencies of life; and to recompence the manufacturer and merchant for the hazards of their trade. Upon the balance of these interests the price of wool greatly depends; it is desirable that it should be gradually augmented, but sudden and large advances are calculated to snap the thread of our connection with foreigners, and to cause the surplus of manufactures to recoil upon ourselves.

FINIS.

Note to Page 246.

The letter alluded to was afterwards noticed, and rather unceremoniously published in the Annals of Agriculture. Mr Y. cannot say that the sheep of Suffolk are increased, unless it be from a greater number of South-Downs being kept instead of Norfolks.

Note to Page 322, line 7.

Mr T. Motley informs me that the lambs this year, when turned into a field of grass lately mowed, exhibited symptoms of a feebler constitution, and that some of them died. The circumstance has since been accounted for by the system of "breeding in and in."

Note to Page 339.

The number of sheep and lamb skins stamped in Leeds within a year, amounted to 44,263. If such returns were correct, they might afford much information respecting the slaughter.

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